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EXPERIENCE WITH INDIRECT SOURCE CONTROLS IN THE UNITED STATES:

FOUR CASE STUDIES

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for the:
U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF TRANSPORTATION AND LAND USE POLICY
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16. ABSTRACT

This report presents a review of experience with highway air quality assessments in four case study areas: New York State; Connecticut; Puget Sound (Seattle/Tacoma), Washington; and Oregon. Four case studies document the procedures used by federal, state and local governments:

o to identify the need for an assessment of the air quality effects of a proposed highway project;
o to determine the appropriate level of analysis when an assessment is required;
o to provide for review of the air quality assessment by agencies and the public;
o to resolve differences over technical and policy issues and arrive at a decision.

The studies show a wide range of approaches to highway air quality review, with significant differences in aspects such as:

o relationships among indirect source review & other state & federal air quality reviews;
o number & size of highway facilities to which indirect source review applies;
o threshold levels for applicability of indirect source review to new or modified highways;
o pollutants covered.

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I. INTRODUCTION AND OVERVIEW

Objectives of the Project

Air quality analyses of proposed highway projects are required by a number of federal laws and regulations, among them the National Environmental Policy Act's environmental impact statement (EIS) requirement and the "consistency" determinations called for under 23 U.S.C. 109(j). Several states have their own environmental assessment requirements, and a few states also require pre-construction review of proposed highway projects as "indirect sources" of air pollution. Many of the state or local indirect source review regulations initially were issued in response to the Environmental Protection Agency's indirect source program (currently suspended), and some are part of certain state air quality implementation plans.

Because it is generally agreed that an air quality analysis adequate for NEPA or a similar state statute also should be adequate for consistency determinations and for indirect source reviews, the Federal Highway Administration has promulgated instructions for developing highway air quality assessments which should meet all the legal and regulatory requirements.[1] The FHWA instructions, developed after extensive consultation with the Environmental Protection Agency, provide guidance on technical aspects, but importantly, they stress interagency consultation and cooperation as a major means of assuring the adequacy of air quality assessments.

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[1] U.S. Federal Highway Administration, Federal-aid Highway Program Manual, Chapter 7-7-9.

Experience to date, however, has shown that highway air quality assessments have not proceeded as smoothly as one might hope. As a recent EPA/FHWA conference revealed, among the problems which have arisen are:

- disagreements among agencies over the need for an air quality assessment, the pollutants to be examined, analysis procedures, and the level of detail necessary;
- disagreements over the timing of studies (i.e., concern that they are not being performed until the project is nearly ready to be implemented and therefore do not affect decisions on the project);
- uncertainty about the responsibilities of various federal, state, local agencies;
- uncertainty over the role of interested agencies and the public;
- lack of clear procedures for resolving real disagreements on policy, procedures, and technical issues;
- disagreements over the appropriate criteria for decisions on highway projects with adverse air quality effects (for example, whether mitigation measures or "tradeoffs" should be required).

Nearly every large metropolitan area has wrangled with these issues, and some recently have begun to fashion policies and procedures to resolve them. It is appropriate, then, to review the experience in several states, in order to find ways of improving the air quality assessment process and of removing stumbling blocks, as well as to provide additional guidance to the various agencies.

This report presents a review of experience with highway air quality assessments in four areas: New York State; Connecticut; Puget Sound (Seattle/Tacoma), Washington; and Oregon. Three of the case study areas currently have indirect source regulations (the Puget Sound regulation was dropped during the case study), and all but Oregon have state environmental policy acts requiring EISs which include evaluations of highway projects' impacts on air quality. The case studies document the procedures used by federal, state, and local governments:

- to identify the need for an assessment of the air quality effects of a proposed highway project;
- to determine the appropriate level of analysis when an assessment is required;
- to provide for review of the air quality assessment by appropriate agencies and the public; and
- to resolve differences over technical and policy issues and to arrive at a decision.

They provide a base of information for comparison of procedures and policies on highway-related air quality issues, and permit some initial conclusions about ways in which the air quality assessment process might be improved.

General Approach

This report presents a review of experience with highway air quality assessments in the four case study areas. The case studies are based on personal interviews and telephone conversations with transportation and air quality staff personnel, including as appropriate:

- EPA Regional Office
- FHWA Regional Office
- FHWA Division Office
- state environmental agency (air quality agency)
- state highway agency
- metropolitan planning organization (MPO)

- local air quality agency, if any
- A-95 review agency

Table 1-1 presents a list of questions used to guide the interviews. The questions were not asked directly; instead, they served as a checklist to make sure all important topics were covered in the discussions.

Summary and Conclusions

The four case studies prepared for this project show a wide range of approaches to highway air quality review, with significant differences in aspects such as:

- relationships among indirect source review and other state and federal air quality reviews;
- number and size of highway facilities to which indirect source review applies;
- threshold levels for the applicability of indirect source review to new or modified highways;
- pollutants covered;

Table 1-1: INTERVIEWERS' CHECKLIST FOR CASE STUDIES

1) Legal requirements; coordination

- Discuss state and local laws and regulations and local practice
- Discuss procedures being followed under federal, state and local laws and regulations
- Are state and local air quality analysis requirements fulfilled by a federal EIS? Are there additional state and local requirements, either procedural or technical? Are there any conflicts between federal and state or local requirements?
- Can federal, state, and local air quality analysis, reviews and public hearings be combined?

2) Agency roles and relationships

- Discuss role(s) assigned to various agencies and current status of activities/successes and problems
- What are agency rsources and staff capabilities for performing (or participating in) air quality assessments? Constraints?
- What agency(s) is(are) responsible for preparing the air quality assessment? Is consultation with other agencies required? Informal procedures, contacts?
- Who makes the decision on the need for an air quality assessment? On the level of detail? Who gives approvals or disapprovals?
- How are disagreements among agencies resolved?

3) Procedures and Timing

- Are there explicit traffic or air quality thresholds for a negative declaration or for automatic indirect source approval or consistency finding?
- Are there formal or informal procedures for determining level of detail of air quality analysis for highway projects? Does this occur prior to EIS preparation?
- Formal or informal procedures for resolving technical disputes on air quality analysis for highway projects? Does this occur prior to EIS preparation?

Table 1-1: (continued)

- At what point in project development is air quality analysis presented to the public? (Is it?) To other agencies? Is there a formal or informal process for other agencies to review and comment on analysis?
- Are there agreements on the timing for various air quality and public involvement activities?
- Is there an explicit process for making decisions on highway projects with air quality problems? Who is involved, and how?

4) Suggested Changes

- Are there serious deficiencies in the process from the interviewers' perspectives?
- Are there changes in current regulations which would alleviate problems?
- Is additional guidance needed? Is so, what kind?

- types of air quality analysis performed, and by whom;
- extent of design modifications for the mitigation of air quality impacts;
- level of public involvement in review process; and
- level of controversy resulting from this review.

The major characteristics of each review process and some of the most important differences are shown in Table 1-2.

In addition to an assessment of the similarities and differences among the four review approaches, a number of more general conclusions may be drawn from this evidence.

- Highways generally have not been the major sources of controversy for indirect source review. They have gone much more smoothly through the process than parking lots, for example, because the latter usually are private developments which otherwise would not be subjected to regional or state control. To many observers, indirect source regulations are poorly disguised tools for growth control advocates to use in stalling facilities, and this stigma has reduced the effectiveness of the overall program.

- The threshold levels for consideration of highways are too high in most cases. This must be viewed in light of the effect which indirect source review has had on highway design, construction, and operation. In most cases, significant design and operational modifications have been achieved in response to air quality concerns raised by the indirect source review agency. Many observers feel that smaller-scale highway projects also can have significant air quality impacts and would benefit from the same design scrutiny now accorded the larger ones.

- Air quality agencies achieve greater influence as a result of indirect source review, even though it may be politically infeasible for them actually to exercise their veto powers. This influence, which is manifest in the many mitigation measures and design modifications resulting from indirect source analyses, derives in large part from the explicit role in the EIS approval process assigned by FHWA to the indirect source agency (the IS agency must issue a permit prior to EIS approval), and also from the ability to attach conditions of operation in lieu of denying the permit altogether. It is interesting to note that no comparable powers exist for any air quality agency in the absence of indirect source regulations.

TABLE 1-2: SUMMARY OF INDIRECT SOURCE REVIEW PROCEDURES FOR HIGHWAYS

	CONNECTICUT	NEW YORK	OREGON	SEATTLE/TACOMA
Indirect source agency	State Dept. of Environmental Protection (DEP)	State Dept. of Environmental Conservation (EnCon)	State Dept. of Environmental Quality (DEQ)*	Puget Sound Air Pollution Control Agency (PSAPCA)
Pollutants covered under indirect source review	HC, CO, NOX	CO for all facilities, HC, NOX for highways	HC, CO, NOX	CO
Facilities to which indirect source review applies	Highways, airports	Highways, airports, parking facilities	Highways, airports, parking facilities	Highways, airports, parking facilities
Threshold levels for new highways	1000 UCH/HR design capacity and 50 tons or more of emissions/yr OR	20000 Urban (Average Daily Traffic)	50000 Rural 20000 Urban (Average Daily Traffic)	20000 (Average Daily Traffic)
Threshold levels for highway modifications	any highway which will cause 50% increase in ambient levels	10000 Urban (ADT)	25000 Rural 10000 Urban (ADT)	10000 (ADT)
Number of Facilities reviewed	20(1/79)	75(2/79)	250(1/75-12/77)	37 (6/75 - 5/77)
Number of Highways reviewed	2	>10	6	1
Typical disposition of highway cases	Modifications to design of facility by State DOT	Approval	Approval with conditions in all cases	No decision as of 9/77

TABLE 1-2 (continued)

	CONNECTICUT	NEW YORK	OREGON	SEATTLE/TACOMA
Length of review process (measured from receipt of a completed application)	90 days w/o a hearing, but possibly longer otherwise	no fixed limit	not more than 75 days	not more than 75 day
Can monitoring prior to the review be required?	No	Yes	Yes	Yes
Specific emission analysis methods required for use by applicant?	Emissions analysis not performed by applicant. Agency uses State CO models	Agreement between EnCon and State DOT on data requirements and levels of analysis DOT uses CALline 2 or EPA Highway.	Not explicitly discussed in regulations or guidelines	Subject to prior consultation. CAL line EPA list source, or Wash. State model co sidered acceptabl
Is separate modeling performed by the review agency?	Yes	No	No	Yes
Public involvement measures	Public availability of application and agency evaluation for at least 30 days prior to decision. Public hearing if requested by applicant or affected municipality.	Same as for Conn.	Announcement of proposed decision, distribution of supporting data, and consideration of comments. Formal appeal period following final decision. No public hearing.	Announcement of proposed decision, di tribution of suppor ing data, and consi eration of comments. No public hearing.
Is there a State EIS requirement?	Yes	Yes	No	Yes

TABLE 1-2 (conclusion)

	CONNECTICUT	NEW YORK	OREGON	SEATTLE/TACOMA
Any written agreements on coordination of environmental reviews?		Yes	No	No *

Note:

* Regional Air Pollution Control Agencies may be designated under the Oregon regulation, but only one such delegation has occurred (Lane County),

- There has been little procedural coordination between Indirect Source Review and Environmental Impact Statement preparation. Although indirect source approval is a condition of EIS approval, the timing of the two reviews is quite different. The EIS is done normally in the location stage of highway planning, while the Indirect Source Review relies on detailed design data which often only become available at a later stage. In many cases, the indirect source permit is treated much like a building permit which is obtained just prior to construction. Notwithstanding these differences, the EIS air quality analysis sometimes is used as a basis for indirect source review, and agencies often seek an analysis strategy which will satisfy both.

- Indirect source review has not been a major occasion for public involvement in highway decision-making. Although provision is made for public comment in all cases and public hearings in many, the extent of public involvement in indirect source review has not been great. Instead, the review has been primarily a technical examination of air quality issues, with controversy arising over methodological disagreements between agencies.

- Heavy reliance on exact predictions of air quality impacts has been controversial. Most observers agreed that precise estimates are not possible from existing transportation/air quality models, yet the indirect source review process invites decision-making which is based on small differences in model results. This reliance on precision in impact analysis has been a major source of controversy for indirect source review, and some agencies have reacted by emphasizing reasonable assumptions, sensitivity analyses, and relative rather than absolute improvements as the bases for air quality modeling.

- There have been few formal agreements between transportation and air quality agencies on scope or level of air quality analysis, even though there has been much informal coordination. This is because it is in everyone's interest to cooperate early and throughout the process in order to minimize delays resulting from inadequate air quality analyses. Thus, formal agreements have not been necessary in most cases.

- There is no unanimity about the pollutants examined or about the models used for analysis. Some areas have stressed the contribution to regional exident pollution, while others have focused on localized CO hot-spot formation or exacerbation. Since most areas have both CO and oxident problems, these variations are due to philosophical differences embodied in legislation and in porgram generation. Similarly, many models and levels of analysis are employed in the case study areas, reflecting the wide range of analysis tools available and the considerable disagreement over the appropriateness of various modelling approaches.

The overriding benefit to air pollution control resulting from indirect source review has been the incentive it provides for highway agencies to deal openly and frequently with air quality agencies, and to fully consider the air quality implications of highway design options. This has given air quality concerns a voice in highway planning, without the absolute veto power so feared by critics of indirect source review. Indirect source review also has provided the occasion for examining the air quality impacts of proposed highway projects' design details, which frequently are not available when the EIS is prepared. Nevertheless, indirect source review can be combined with other environmental reviews such as the EIS when project design information has been developed, and thus need not cause undue delays on small projects.

II. CONNECTICUT

Overview

Connecticut's indirect source regulation, adopted in response to early EPA pressure for indirect source review, became effective in 1974. The regulation has undergone several revisions since then, and the latest such amendment became effective on June 30, 1978.

The current regulation defines an indirect source as any highway with a design capacity of 1,000 vehicles or more per hour in one direction or any airport designed to accommodate 50,000 commercial flights or more per year. An indirect source permit is required for construction or modification of such a facility if operation of the source may result directly or indirectly in aggregate total emissions of air pollutants greater than 50 tons per year. Earlier versions of the regulation did not limit the review to highways and airports; parking facilities, warehouses, industrial facilities, schools, restaurants and office buildings previously were subject to review. But inclusion of those facilities was controversial, and they were dropped from the latest version. The applicable criteria may be compared with those suggested by EPA in 40 CFR 52,22(b), shown in Figure 2-1.

In addition to these criteria, the indirect source regulation authorizes the commissioner to require a permit of any new or modified source which "will or may result in a substantial reduction in the quality of the air

Figure 2.1 Federal Indirect Source Criteria

		SMSA	non-SMSA
highways	new	20,000 vpd	not required
	modified	increment of 10,000 vpd*	
parking	new	1000 spaces	2000 spaces
	modified	increment of 500 spaces	increment of 1000 spaces
airports	new	50,000 operations per year or 1.6 million passengers per year	
	modified	increase of 50,000 operations per year or 1.6 million passengers per year	

*within 10 years of construction

resource" {§19-508-100(a)(3)(i)}. The regulation defines a substantial reduction as "any increase in the ambient pollutant concentration in excess of fifty percent of the amount determined by subtracting the existing ambient pollutant concentration from the applicable ambient air quality standard". The commissioner may also specify a percentage smaller than 50 for use in any region or subregion of the state.

The regulation outlines a process for indirect source review containing several milestones:

- The DEP commissioner must acknowledge within 10 days that he has received an application for an indirect source permit.
- The applicant must make available to the public for 30 days
  a) a copy of the application (which contains details of the proposed construction or modification).
  b) A copy of the DEP commissioner's evaluation of the air quality data in the application.
  In addition, the applicant must publish a notice describing the location of the above two documents and must post a notice on the proposed site stating that a permit has been sought.
- When there is no public hearing, the commissioner must inform the applicant of the decision to approve or deny within 60 days of receipt of the application, except that he may extend the period another 30 days.
- If a public hearing is held, the commissioner must inform the applicant of the decision within 30 days of receiving the record of the hearing.

The commissioner must inform the public of indirect source applications received, and, while a decision is pending on an application, any person may file a written comment or objection opposing the permit in its entirety, or requesting that specific conditions be attached to it. An objection may be accompanied by a request for a hearing. A hearing may be held at the discretion of the commissioner or upon the request of *any* municipality.

An indirect source permit may be revoked or modified if development does not begin within one year of issuance, or if work is suspended for a year or more.

The full text of Connecticut's indirect source regulation is included in Appendix A of this report.

The Review Process

Responsibilities under the ISR program are shared by several state agencies. The Connecticut Department of Transportation (CDOT) is responsible for providing VMT estimates and other relevant traffic data, and the Department of Environmental Protection (DEP) performs air quality analysis. In the past, the DEP role consisted of a build/no build comparison based on project-level NO_x, HC, and CO analyses. The requirement for separate project-level HC and NO_x analyses was subsequently modified to permit the use of existing regional oxidant analyses when appropriate. Since each project must be part of an adopted MPO plan and since oxidants are routinely modeled by the MPO, this modification is viewed as a considerable simplification of the information and analysis requirements, with little or no detrimental effect on the overall ISR process.

A copy of the application for a highway ISR permit is included in Appendix A. The application requires (of Connecticut DOT, in this case) detailed design and traffic information for input to the carbon monoxide analysis. The CO analysis is designed to assess the air quality

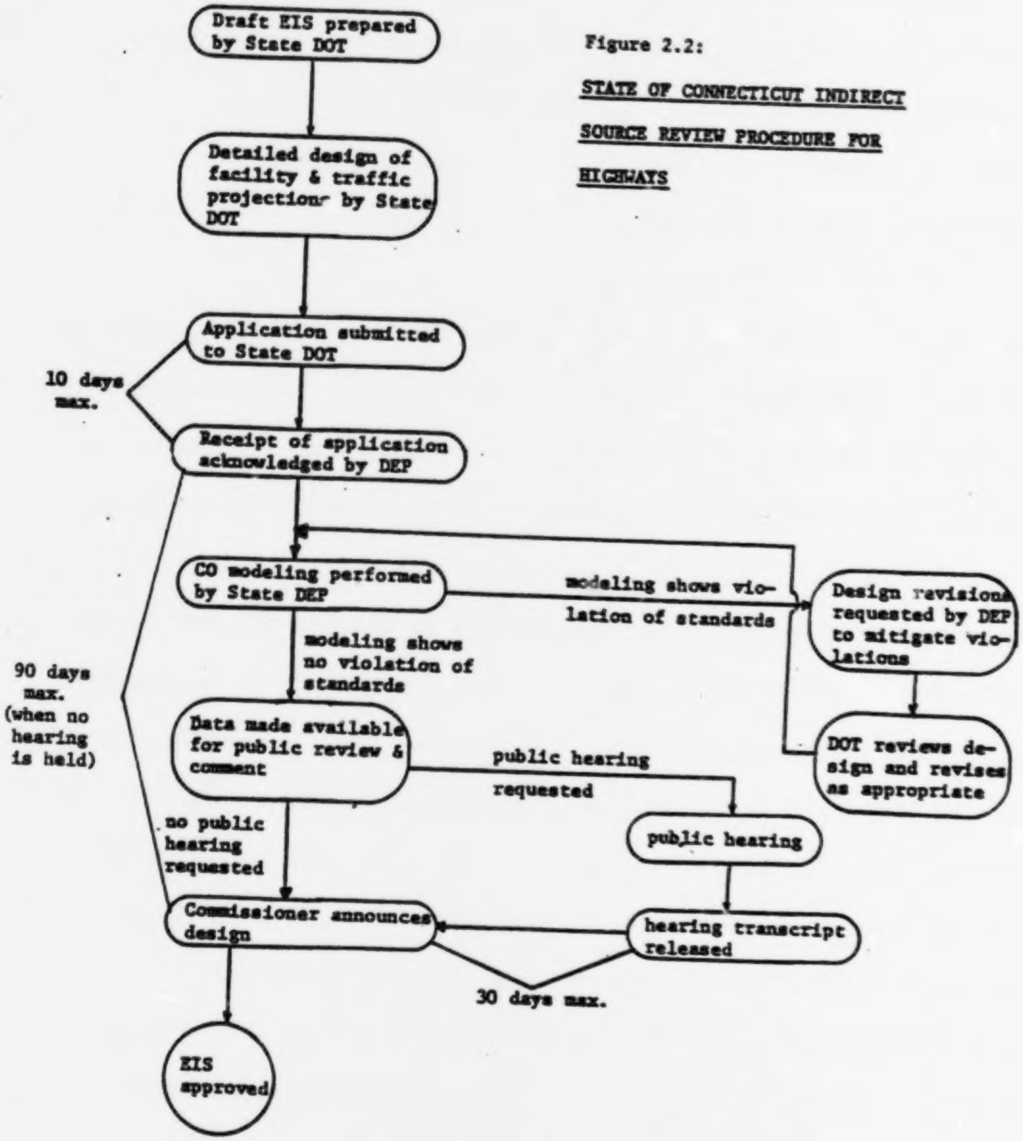
Draft EIS prepared by State DOT
Detailed design of facility & traffic projections by State DOT
Application submitted to State DOT
10 days max.
Receipt of application acknowledged by DEP
CO modeling performed by State DEP
modeling shows violation of standards
Design revisions requested by DEP to mitigate violations
DOT reviews design and revises as appropriate
modeling shows no violation of standards
90 days max. (when no hearing is held)
Data made available for public review & comment
public hearing requested
public hearing
no public hearing requested
Commissioner announces design
hearing transcript released
30 days max.
EIS approved

Figure 2.2:

STATE OF CONNECTICUT INDIRECT SOURCE REVIEW PROCEDURE FOR HIGHWAYS effects of the project on the entire affected highway network by tracing vehicles as they travel routes which include the proposed highway section. This type of analysis is designed to preclude construction of facilities which might offer high speed travel and therefore reduced CO levels within the project itself, but are served by a supporting road network which would show violations due to increased congestion from traffic entering or leaving the new facility.

When an application is received at DEP it is reviewed by a staff member and then given to the clerical staff who code the traffic information so that it can be input into the DEP's carbon monoxide model. Based on the modeling results, DEP prepares a carbon monoxide impact evaluation, a copy of which is included in Appendix A of this report. If no violations are projected, a permit decision is made by the DEP commissioner following a public hearing (if a hearing is held). If the analysis results show violations, CDOT is informed of the location and magnitude of projected violations and given an opportunity to revise the application. Revisions made at this stage may involve design changes, such as relocation of intersections or entrance and exit ramps, or they may involve minor alterations such as changing the amount of green time in a traffic signal, installing a yield sign rather than a stop sign, or permitting right turns on red. Following these modifications, the carbon monoxide analysis is performed again; if additional violations are shown, the project is again revised, but if there are no violations the project continues through the approval process.

The Connecticut ISR is completely separate from the EIS process under NEPA. This separation is attributable to the fact that indirect source analysis concentrates on carbon monoxide, while at the draft EIS stage there often is not detailed enough information on intersection and ramp locations to permit a CO analysis which is adequate for indirect source review. General CO, HC, and NO_x analyses are performed and included in a draft EIS along with a statement of *consistency* from the DEP. The FHWA Division Administrator signs the draft EIS and sends it to the Regional office in Albany. The draft is then circulated, and a public hearing is held. At some point between the draft EIS and the final EIS, the indirect source permit must be obtained, since FHWA regulations require the approval of the ISR agency as a condition for approving a final EIS.

One significant difference between the EIS and ISR concerns the timing of public hearings. In the normal sequence of events, these may be separated by three months or more, simply because DOT cannot request a hearing until it submits an application to DEP for review. To expedite the process and enhance its image of cooperativeness, CDOT routinely has requested a hearing at the time of submission, but this still does not avoid a lengthy delay.

Assessment of the Indirect Source Program

The indirect source program in Connecticut has generated considerable controversy. This situation can be traced to a variety of factors and circumstances, but two interest groups figure most prominently. Connecticut has long had an articulate and active environmental lobby which was instrumental in securing the passage of relatively strict environmental legislation. At the same time, the construction industry has held environmental regulations responsible for delaying or preventing the construction of projects which would have provided needed jobs. These two groups often clash at indirect source hearings, sometimes bitterly. On occasion, the dialogue between them has dominated the proceedings to the detriment of a broader, more balanced examination of the issues.

The parking space reviews which were recently removed from the indirect source regulation were particularly controversial because they delayed private developments for periods of 6 months or more. Critics argued that the reviews often held up acceptable projects and that they were unevenly applied. The outdated indirect source permit criteria are included in Appendix A of this report. They are useful for comparison with other states' indirect source regulations, and also to indicate the extent to which the new regulations represent a diminished review authority over certain sources.

It may be said that ISR is inherently controversial because it causes a highway project to be scrutinized solely with respect to its air quality impacts. In carrying out its mandate, the air quality agency will set the threshold criteria to minimize air pollution impacts; yet this may make it extremely difficult to design acceptable highway projects for urbanized areas. ISR has brought two commonly accepted governmental purposes--ensuring a healthful environment and guaranteeing the movement of people and goods--into conflict at the operational level. Policy guidance on balancing the two has come in the form of Congressionally-mandated ambient air quality standards. However, guidance on *how* to determine the impact of a project on those standards has been lacking, even though it is equally important in making the policy operational. This situation has resulted in extensive reliance on analytical tools to document project impacts on ambient standards, which effectively has opened a Pandora's box by bringing up the whole series of problems related to accuracy and reliability of transportation/air quality models.

The following discussion highlights several aspects of the indirect source review to demonstrate both the variety of perspectives on the program held by staff of affected agencies and the types of problems which have been encountered in conducting the review.

1. Extent to which the indirect source review generates unique information.

There is general agreement in Connecticut that the carbon monoxide analysis performed as part of the indirect source review is more detailed than the one conducted for state and federal environmental impact assessments. Although agency personnel suggested many changes (such as combined hearings) to expedite project review, most felt that the EIS and the ISR were not compatible, and no one strongly advocated combined procedures. FHWA and DOT personnel emphasized that the indirect source CO analysis is based on more detailed information than is available for the EIS carbon monoxide analysis. They view the two CO analyses as representing different stages and levels of sophistication, and consequently do not consider them to be duplicative. In the past, HC and NO_x analyses were duplicated in the indirect source and EIS procedures, but, as indicated previously, procedures were modified to reduce the overlap.

2. Extent to which program goals are fulfilled with current regulations.

One DOT[1] staff member observed that if a goal of the indirect source review is to minimize air pollution impacts of highway projects, then perhaps it would be more direct and more efficient to better educate highway planners and designers at the outset, instead of requiring an "ex post facto" review. As it is, the designers who originate projects are not attuned to air quality issues, so a project is first subjected to extensive air analyses by staff in the environmental section after it has emerged from the design group. If there are problems which the environmental staff cannot solve with minor adjustments, portions of the project are sent back to the design group for modification. According to DOT staff, this process is cumbersome and does not contain sufficient learning opportunities for highway designers to acquire the knowledge to avoid future problems. While these comments may have a great deal of validity for internal DOT operations, they do not represent a strong criticism of ISR as a separate review. DOT has a responsibility to balance its primary goal of mobility with social, environmental, and economic considerations. In each case, some trade-off is made between air quality and a host of other factors, according to the judgement of DOT staff. It is useful to have an outside agency to review the treatment of air quality and to serve as an advocate in the public forum when air quality is in conflict with other goals. However, if the consideration of air quality did become more pervasive within DOT, the level of effort and additional delay of ISR might be reduced considerably.

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[1] References to DOT in this section denote the Connecticut State DOT (CDOT).

During the course of the interviews, a number of other comments were made regarding the fulfillment of program goals:

- Some DEP staffers and environmental groups initially viewed ISR as a legitimate means of influencing certain land-use decisions, through highway location and parking controls. However, the program has been carried out from a much narrower perspective, i.e., in terms of project-level air quality impacts and nothing more. In fact, the primary leverage over land use has been dropped, now that parking reviews no longer are performed. This is seen as a considerable retrenchment by those who favor intervention in the land use process, but others are quick to point out that no such intent ever was expressed officially during the adoption of the regulation.

- It was argued that ISR has had little or no impact on actual air quality in the state, because of the emphasis on CO controls in an area whose most serious pollutant is photochemical oxidants. While there may be some truth to this, CO nevertheless is somewhat of a problem in Connecticut, and each project review represents an opportunity to avert a potential CO hot spot." Other states (see, especially, the Seattle/Tacoma case study) have recognized this explicitly, and scaled both the review process and their expectations accordingly.

- Analytical methods and assumptions are viewed as a critical factor in the success or failure of ISR, because slight changes in certain assumptions (as in the level of "induced" travel) can alter the outcome of the analysis. It was argued that the present methods favor the DOT position on highway building, simply because DOT performs much of the analysis which serves as an input to each review, and DEQ is not in a position to challenge the results. Under this line of reasoning, program goals for impartial assessment of air quality impacts are not met under the current division of responsibilities.

There appears something of a pattern in all of these comments. Those who seemed most discouraged with ISR also had the grandest expectations for the program as a broad entry for environmental interests into transportation decision-making. Conversely, those who seemed most optimistic tended to view ISR as nothing more than a final check on facility design to minimize the localized pollution impacts. It is ironic that, while the more limited view probably is more realistic, it is difficult to maintain the necessary level of bureaucratic or public support to sustain such a modest program. This will be illustrated further in the Oregon and Seattle/Tacoma case studies.

3. Implementation problems and practical criticisms of the regulation.

a. Delays.

Opponents of the ISR argue that it causes unacceptable delays in project implementation by adding as much as three months to the approval process. If weighted against the likely air quality benefits, it is said that the resulting increases in cost would be too large to justify the program. These arguments are compelling, but, first, one must ask whether or not such delays are an inevitable part of the review process. DEP staffers think there would be little or no delay if they received better cooperation from applicants. For example, DOT is supposed to provide them with VMT and traffic data to analyze, but DOT staff often seem slow in making the data available, even when they do not convey the impression of being back-logged in their work. Information which DEP needs for its analysis is often missing from the traffic data which DOT submits, and acquiring it necessitates an exchange of memos, which causes further delays. On the other hand, DOT staff attribute the delays to the application itself. They cite their first two highway applications, for which they had to look at over 100 intersections. Twenty of these were examined in depth and 8 violations were identified, all of which required modification. In one case, a DOT staff member said that he had spent four months preparing the initial application for an indirect source permit and eight months revising it. By contrast, DEP staff estimate that the application procedure takes approximately one week of their time and two weeks of clerical and secretarial time per project, but the estimate varies depending on the number of iterations the application goes through.

The delay appears to result from the length of time required for DOT to complete the application and revise the design in response to DEQ modeling. However, based on the information presented above, it seems unfair to "blame" indirect source review entirely for this situation. In particular, one might argue that some of the analyses and design modifications ought to be conducted as an integral part of the DOT planning process, regardless of the existence of indirect source review. Certainly, DOT should concern itself with optimal facility design, especially since the same design changes which improve air quality also tend to decrease fuel consumption and reduce total vehicle-delay in the system. In any event, the delays could be reduced considerably if DOT would make a greater staffing commitment to ISR, and if DEQ could learn to communicate with DOT sooner and more effectively. Some delay may be inevitable, but not to the extent indicated in Connecticut.

b. Analytical issues; model accuracy.

DOT staff recognize that the modeling process contains the potential for considerable error. Traffic predictions are generated by DOT based on a network analysis including many simplifying assumptions, and, as a consequence, contain some margin of error. These results are run through a queueing model which also is a source of error because it treats each intersection as though it were isolated. Then, this information is fed into DEP's carbon monoxide model. Because they are the joint product of three approximate models, the results cannot be considered highly reliable. According to DOT staff, a model with an accurate traffic simulator combined with CALINE, for example, would make it easier to perform the analysis because it would be a single-step tool with a much faster turnaround time and considerably higher accuracy.

DEP staff believe that their CO model is a good one for open field idle mode operation, and tests have shown that model predictions are within 10% of field measurements. Because their model is openly available for scrutiny and criticism, DEP staff feel that they should have the equivalent opportunity to question the traffic and VMT data generated by DOT. However, a memorandum of understanding between the two commissioners precludes such an action by DEP staff: the memo basically says that the two departments will not question one another on traffic and air pollution analyses. DEP staff expressed doubts about DOT's VMT data and suggested that there had been talk about retaining a private consultant to evaluate it. As a result of the memorandum, DEP staff are in the dark about much of DOT's analysis. For example, they do not know what assumptions have been made about vehicle occupancy rates and other trip characteristics. DEP is concerned because they are aware that this information influences the analysis results.

An FHWA official cited an example of a project for which two analyses had been performed. One analysis showed a small margin of improvement of 0-5%, and the other analysis showed that the project would not result in improvements in air quality. The two analyses differed only in their trip length assumptions and treatment of hot and cold starts.

c. Analytical issues; use of model results.

Given the data and modeling problems cited by different participants, it is not surprising that there are divergent opinions on the extent to which policy decisions should be based on modeling results. Some argued that the use of exact numbers can be deceptive, because it implies accurate estimates and leads to a precise ranking of alternatives. A more qualitative scheme was suggested, in which alternatives with similar impacts would be grouped together, and the groups given an ordinal ranking based on their approximate impacts. Another suggestion was to present each estimate with an associated confidence interval, derived from the statistical properties of the models. The question arises: without exact estimates, how can the necessary level of mitigation be determined in each case? There is no simple or correct answer to this question, because it touches on one of the most fundamental issues in environmental assessment--whether it is necessary to undertake expensive modeling in order to motivate concern over environmental impacts and to provide a precise yardstick for impact abatement, even though the model results may be inaccurate or actually misleading.

DEP staff acknowledge that there is a margin of error in the analyses and consequently use an ambient CO criterion of 10 ppm rather than the 9 ppm standard. They voiced skepticism, however, over the fact that whenever a highway project is run through the CO analysis and shows violations, DOT's solutions do not require re-design; for instance, violations Often the solutions do not even require re-design, as when violations sometimes can be eliminated with adjustments in the amount of signal green time. From a vantage point outside of DOT, it is difficult for observers to tell whether this is a legitimate engineering result or an analytical "sleight of hand." This uncertainty undermines the credibility of the process.

Individuals interviewed at DEP and FHWA concurred to some extent with the DOT staff member who advocated placing less reliance on the numbers generated by the air quality analysis. DEP staff suggested that under a more qualitative approach it would be appropriate to assess the usefulness of a proposed facility in terms of whether or not there are acceptable alternatives. DEP staff indicated that some of the projects under consideration offer only minimal travel time savings and observed that construction jobs were a primary justification in many cases.

Transportation officials brought up the argument that air quality should be treated more as a goal than a standard. It was felt that changing this orientation would permit some tradeoffs between air quality and the other objectives fulfilled by highway construction, particularly when the analysis shows that the air impacts are very nearly within the standards. From this perspective, environmental pressures have created an atmosphere in which there are "ultimately no compromises" on air quality matters. ISR is seen as a primary tool for this perceived domination by environmental interests.

d. Value and use of indirect source review.

The various opinions of ISR are illustrated by the comments of agency staff:

- A DOT staff member indicated that he was sympathetic to the goal of reducing adverse air quality impacts of highway projects, but he believes that the indirect source review is too unwieldly to be of real value in the highway planning process.
- DEP staff said, "For what the indirect source review is costing, [we] would continue it, [because it is] useful in designing roads."
- FHWA officials argued that air quality is assigned too prominent a role in highway decision-making.
- EPA regional staff believe that the review is useful in the sense that it generates unique air quality information, and that it may become even more valuable with improvements in analytical tools and with integration into the consistency process. They expressed concern, however, over the extent to which ISR had become a battleground for environmentalists and development interests. In some cases, they felt it was unclear whether the motives for participation were related to air quality or to some other unrelated interest which might be furthered through the air quality debate.

e. EPA role in indirect source review.

As may be expected, comments about EPA reflected a great deal of inter-agency and intergovernmental rivalry. FHWA expressed disagreement with EPA's [Region I] attitude toward attainment of the standards: EPA seems to predicate its policies on the assumption that attainment is feasible, yet FHWA and others are concerned that it is not. Most state and federal transportation officials felt that EPA had unreasonably high expectations of the indirect source program, and too much of an inclination to become involved in state affairs through ISR. One official argued that indirect source should be a state requirement like the 55 mph speed limit, with the onus on the governor to determine the level of state enforcement. EPA's role could be one of "providing technical assistance and monitoring."

Regional EPA staff envision encouraging other states to develop their own indirect source regulations. EDP staff see indirect source as an important "backstop to consistency"; they want to avoid specific VMT reduction requirements, and envision an ISR-type project air quality review as one check on the consistency of a MPO's transportation plans and programs with air quality attainment plans.

Given the central role of analysis in the indirect source review process, it is clear that more work is needed on analytical tools. However, EPA staff feel that it may be possible to minimize the importance of analysis by requiring 1) that the project be part of an approved MPO plan which meets regional hydrocarbon standards, and 2) that the project not cause any CO violations.

III. NEW YORK

Provisions of the Indirect Source Regulation

New York's indirect source regulation, developed in response to EPA's initial push for state indirect source review, became effective in January, 1975. The New York State Department of Environmental Conservation (EnCon) is responsible for administering the program. The regulation calls for pre-construction or pre-modification review of highways, airports, and parking facilities to ensure that there are no violations of national air quality standards and that the operation of the indirect source will not result in the violation of any portion of the state implementation plan. The determination of whether or not a violation will occur is based on an assessment of "... anticipated ambient concentrations as of the time of completion of the proposed construction or modification ... and during a reasonable time thereafter. In the case of highway sections and airports such time shall be a ten year period following such completion." [§ 203.8 (b) (3)]

Thresholds for review of facilities are contained in the regulation:

- airports
  - new: 50,000 or more operations per year, or
    1,600,000 or more passengers per year
  - modifications: increase of 50,000 or more aircraft operations, or
    increase of 1,600,000 or more passengers per year

- parking facilities
    - new: capacity of 1,000 vehicles or more in an urban area, and capacity of 2,000 vehicles or more in a rural area
    - modifications: by itself or in conjunction with capacity added since November 1973 or the date of the latest permit to construct will produce a capacity of 500 vehicles or more in an urban area, and
      1,000 vehicles or more in a rural area
- highways
    - new: average daily traffic volume of 20,000 vehicles within ten years of completion
    - modification: average daily traffic volume of 10,000 vehicles within ten years

These may be compared with the EPA recommended threshold values shown in Figure 2-1.

New highway projects having an average daily traffic volume of 20,000 or more, highway modifications having volumes of 10,000 vehicles, and airports meeting the review criteria are to be analyzed with respect to the Clean Air Act standards for three major pollutants: carbon monoxide, photochemical oxidants, and nitrogen oxides. All other projects are to be analyzed with respect to the carbon monoxide standard only.

The regulation further specifies that the decision for CO shall be based on:

> "... evaluating the anticipated ambient concentrations of carbon monoxide at the receptor or exposure sites where people might reasonably be expected to be exposed and which will be affected by vehicular movements expected to be attracted to the indirect source; such determination shall be based upon traffic flow characteristic guidelines, appropriate atmospheric diffusion models, and any other reliable analytic method or combination thereof." [§ 203.8 (c)]

The determination for photochemical oxidants and nitrogen dioxide shall be made by:

> "... evaluating the anticipated ambient concentrations of such pollutants at one or more locations determined by the [EnCon] Commissioner to be representative of the points of the greatest exposure within the affected area." [§ 203.8 (d)]

Upon receiving an application for an indirect source permit backed up by appropriate technical analysis, the Commissioner makes a preliminary determination of whether he intends to approve, approve with conditions, or deny the application. The applicant must publish in a newspaper with general local circulation a notice of the Commissioner's determination, providing for a 30 day comment period. Copies of the notice must be sent to EPA, all other state and local air pollution agencies having jurisdiction, local elected officials, the appropriate planning boards, "... and any appropriate board or committee charged with the responsibility for activities in the conduct of the urban transportation planning process (3-C process) ..." [§ 203.5 (c)] Based on the response received during the comment period, the Commissioner determines whether or not there is sufficient interest to warrant a public hearing. If a hearing is held, all expenses must be borne by the applicant. The Commissioner may also dispense with the comment period and go directly to a public hearing if the public interest is sufficient, or if the applicant requests a hearing. The regulation does not specify any deadline within which the Commissioner must reach a final decision on whether to approve, approve with conditions, or deny the permit.

Unless otherwise stated, the permit expires within two years of issuance if construction has not begun, or when "no substantial progress" on

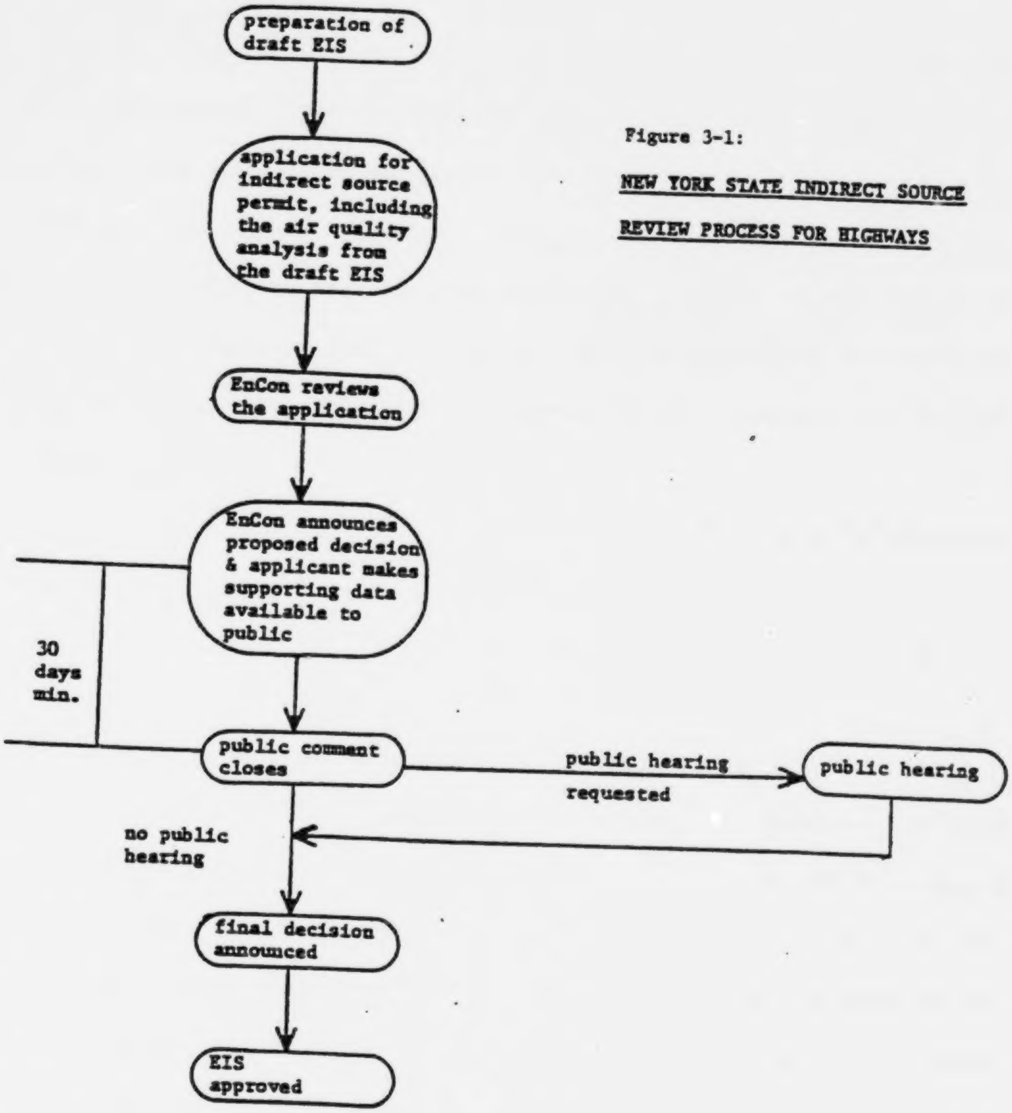
preparation of draft EIS
application for indirect source permit, including the air quality analysis from the draft EIS
EnCon reviews the application
EnCon announces proposed decision & applicant makes supporting data available to public
30 days min.
public comment closes
public hearing requested
public hearing
no public hearing
final decision announced
EIS approved

Figure 3-1:

NEW YORK STATE INDIRECT SOURCE REVIEW PROCESS FOR HIGHWAYS construction or modification is made for a period of two years. [§ 203.11] A copy of the full text of the New York State regulation is included in Appendix B of this report.

When the indirect source regulations were being developed, the New York Department of Transportation (NYDOT) and EnCon formulated a set of procedures for determining data requirements for the type and level of analysis to be performed on projects depending on size and location. This information was put into chart form for use by NYDOT regional offices and also was submitted to FHWA and EPA for their review. A copy of the air quality analysis requirement is included in Appendix B.

Implementing the Regulation

1. Necessary modification.

Several modifications and clarifications have been necessary in order to make the indirect source procedure work smoothly. For example, the regulation specified that the SMSA boundaries were to be the basis for analysis and for determining whether to apply urban or rural criteria. The problem is that in upstate areas where the SMSA is equivalent to the county, some counties have substantial rural portions. Because the distinction between urban and rural also is used to determine how much monitoring is necessary for project analysis, it was generally agreed that using the entire SMSA was unwieldy and would result in unnecessarily detailed analysis for projects in some rural areas. As a consequence, EnCon sub-divided the SMSAs into urban and rural areas so that monitoring and analysis could be more appropriately scaled to what NYDOT and EnCon agreed was "reasonable."

Other modifications have been oriented toward integrating the ISR and the EIS process under NEPA for highway projects. For example, EPA originally wanted the indirect source permit issued *prior* to FHWA's approval of the draft EIS. The two year life of the indirect source permit was too short for several projects, especially those involving new locations. A staff member at FHWA said that for a typical location stage EIS 8-9 years might elapse between completion of the EIS and the start of construction. After an exchange of letters between New York and Washington, it was agreed that a statement from EnCon saying that the project probably would not cause a violation would be acceptable for FHWA to approve the EIS. There was still some dissatisfaction with the "weak negative" approach to the indirect source decision, and in mid-1976 this was changed to a statement from EnCon during draft EIS preparation that the agency would probably issue an indirect source permit; ultimate issuance of the indirect source permit is then postponed until the final EIS.

Of approximately 15-20 highway projects which were undertaken in New York during the first three years of the indirect source regulation, about five triggered the indirect source process. The majority of these projects were located upstate, and public hearings for the EIS and the indirect source permit were combined. Westway (the West Side Highway in New York City) was the first big project to have been subjected to indirect source review. The indirect source hearing for Westway proved somewhat embarassing for EPA, and as a result of lessons learned on that project, several procedural modifications were suggested.* These are oriented primarily toward improving interagency coordination (they are discussed further in a subsequent section).

2. Present Process.

At present the highway air quality analysis performed in New York under the indirect source review is the same as that performed as part of the environmental impact statement requirement contained in the National Environmental Policy Act of 1969 (NEPA). As state and federal regulations governing these analysis requirements currently are written, it is unlikely that an indirect source permit would be required for a highway project unless an EIS also was required. This is due largely to the fact that the traffic thresholds specified in the indirect source regulation were adopted by NYDOT to distinguish major actions from non-major actions: projects which will result in less than 20,000 ADT ten years after completion (or less than 10,000 ADT for a modification) are considered non-major actions, so that no EIS is required.

For major projects, air quality analysis consists of mesoscale (total pollutant burden) analyses for CO, HC and NO_x and a microscale CO analysis. NYDOT performs the analyses and generally uses CALINE 2 for CO although they have used HIWAY. NYDOT has ten regions and the regional office usually prepares the air quality analysis. The regional offices are sometimes assisted by consultants: state staff indicated that consultants were used to help ease the workload on regional offices and not necessarily to provide additional expertise or modeling tools. Typically the air analysis is separate from the rest of the environmental information generated on a particular highway project, and the air report is sent to NYDOT's main office in Albany for examination. After resolving any problems with the analysis, a copy of the report is then sent to FHWA for their review, which typically takes a month.

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* Westway has been extremely controversial for EnCon. As of this writing, they still have not issued the indirect source permit, a fact which is said to be responsible for a recent shakeup of the top ranks by Governor Carey.

Following its inspection, FHWA returns the report to NYDOT for response to FHWA's comments: revising the analysis can take up to one year. The report is then sent to EnCon for review, and the expected product is an affirmation of consistency under § 109 (j) for inclusion in the draft EIS and a statement that an indirect source permit probably will be issued. With the consistency statement in hand, FHWA can then sign and circulate the draft EIS, after which a combined EIS-indirect source hearing is held.

The exact timing of this process can vary according to several factors. It is especially dependent on the inclinations of the group originally preparing the air quality report for the NYDOT regional office. When the region preparing the report has sent a draft to FHWA, the FHWA's final review period usually has been shortened. FHWA staff observed that when the air report is prepared by a consultant it is difficult to coordinate informal reviews and the process is typically longer as a result.

Assessment of the Indirect Source Program

The New York State indirect source review has not been particularly controversial: in fact, the only pressures mentioned during the interviews were pressures on EnCon to retain the program. The most obvious explanation for the lack of controversy is that the program simply duplicates the analysis performed as part of the EIS process under NEPA or the state environmental statutes. Furthermore, the criteria for review of highway projects are so high that it is unlikely that a highway would be subject to indirect source review and not subject to scrutiny under federal or state environmental review. In effect, the daily traffic criteria contained in the indirect source regulation do not call for review unless four lanes are constructed for a new facility or two lanes are added in a modification.

Despite the fact that the program has not been controversial, staff from the various affected agencies have different perspectives on the reviews. The following points highlight several aspects which give an indication of present concerns and possible future directions of the program.

1. Extent to which the indirect source review generates unique information

A staff member in the FHWA division office said that the indirect source program resulted in the selection of more monitoring sites per project than would normally be used, although he added that they would do almost as much monitoring for consistency determinations. This view contrasted with the opinion expressed by NYDOT staff, who said that the analysis and monitoring for a federal EIS and for ISR were identical: they saw no new information generated as a result of the program, and added that the indirect source review was "probably more intended for parking lots rather than highways anyhow." The primary benefit of the indirect source program from his view point was that it contained the traffic volume criteria which they adopted to distinguish major and non-major actions. The NYDOT staff member noted that FHWA's definitions of major and non-major actions do not reflect certain environmental criteria.

Staff members at EnCon feel that the indirect source program is valuable because it gives them an opportunity to check the air quality impacts of large projects. A EnCon staff member added that the indirect source program gives them a legitimate basis for requiring improved air quality analysis.

EPA regional staff suggested that the indirect source review was most helpful for parking facilities because there was no other means of forcing the consideration of air quality in parking location, but for highway projects they felt that the EIS and indirect source reviews were "largely redundant." As a result of this overlap, they see EIS review as giving them the "major handle" on project level air quality impacts.

2. Extent to which program goals are fulfilled with current regulations.

At this writing, EnCon is in the midst of examining the indirect source review program. In the context of pressure *not* to drop ISR, this is oriented toward making the criteria as suitable as possible given the aims of the program, and assessing, to some extent, those aims. For example, the criteria currently used for evaluation do not require that a project improve air quality; they merely say that a project should not cause a new violation or exacerbate an existing violation. EnCon staff indicated that a possible variation on the review program would be to require a demonstration of improvement as a result of project construction. One of the primary concerns of EnCon's staff is that the criteria may not be appropriate for flagging problem projects. In particular, some important topics which may not be covered in the EIS could be crucial for air quality, such as secondary traffic effects which increase congestion in related facilities or long-term consequences of major highway construction.

3. Analytical Issues.

NYDOT staff said that one of the problems they currently face is the custom of using very conservative assumptions in transportation/air quality analysis. Particularly for upstate projects, the practice has been to use "worst case" assumptions because air pollution levels have never come near to violating the standards. Now they are finding that with new emissions factors, improved tools and increased air pollution problems, the analyses are coming closer to violation levels. As a result, NYDOT can no longer choose the most conservative assumptions in every case, and is having to "tailor the analysis" to more accurately reflect expected conditions. EnCon staff echoed the NYDOT concern, cautioning that the air quality models currently in use seem to over-predict.

FHWA added that New Yorkers employ unrealistically severe air quality conditions in their modeling. Their use of stability class F, in particular, was questioned. Since research has shown that stability class F (very stable with no vertical mixing, therefore pollutants which are emitted near the ground stay there rather than being carried away by the upper atmosphere) hardly ever happens, the assumption of 8 hours of stability class F would give air pollution estimates on the high side.

Although less an issue than an interesting point, FHWA staff noted that analyses almost always show that the worst year for air pollution is the year of completion. This can be attributed to the fact that the rate of traffic growth is lower than the expected rate of introduction for emission control technology.

4. EPA role and perspective.

EPA Region II is perceived as playing a passive role in New York's indirect source program: they monitor what the state does, but do not get involved aggressively in the program.

EPA regional staff were critical of the indirect source review program and pessimistic about exercising influence over projects through the reviews. While acknowledging that New York's review is comprehensive, they claimed that it offers no way for a federal agency such as EPA to become involved substantively. One of the major objections to the program was that there are no clear, specific criteria for decisions. Ideally, in EPA's view, the guidelines would specify that if certain types of violation occurred, no permit would be issued. They believe that the current New York state regulation places the burden of proof on the opposition, rather than requiring the proponents to assure the project's acceptability. EPA staff cited Westway as a classic case of the onus being on the opposition.

Regional staff feel that more support from EPA headquarters in Washington is necessary. Further guidance on implementing the criteria contained in the joint FHWA-EPA guidelines for consistency was mentioned as a pressing need. More generally, a desire was expressed for EPA to articulate in regulatory form its policy on highways. Occasionally, when there are problems in the TriState region, FHWA sends in people from Washington as well as from the Regional office. Because of this, EPA staff feel that they need stronger policy backing from Washington.

Commenting on EPA's activities, FHWA staff said that they appear to concentrate too much attention on New York City and have a tendency to ignore the fact that VMT and emissions do not always have a direct relationship, especially when detailed traffic flow considerations are taken into account.

5. Resources required for indirect source review.

NYDOT has two full time staff members in the main office in Albany who deal with air quality issues (including indirect source) and models.

They are responsible for interfacing with FHWA and, to a lesser extent, with EPA and EnCon; for conducting training sessions for regional staff members; and for introducing new modeling techniques and procedures as they become available. One or two people in each of the state regions are trained to perform the project air quality analyses; sometimes these individuals are in the planning division and sometimes they are in design.

In the FHWA Division office, there is one engineer assigned to each state region. Each engineer also has extra assignments, for example, responsibility for air quality issues. The person in the NYS Division who holds this position spent approximately 15-20% of his time on air quality problems over the last few years. Because of the typically fragmented nature of the engineers' assignments, 15-20% is a large chunk of time to spend on one assignment. Now the engineer estimates that he has reduced his time on air quality to approximately 5% due to several factors: there is an alternate air specialist who shares some of the burden, the other engineers have become more familiar with air issues and no longer need to consult him each time an EIS is prepared for a project in their region, and there simply are not as many air studies under way now as there were a few years ago.

EnCon has one full time staff member assigned to indirect source (for all project types, not just highways), and his supervisor also spends approximately 20% of his time on indirect source. Both feel that given the agency's resource commitment and the benefits derived, the program is definitely justified.

6. Some future directions--Westway Impact.

Westway is the largest and most controversial project subjected to New York's indirect source review and has generated considerable dissatisfaction both with the procedures followed and with the uncertain outcome. As a result, things will be done somewhat differently in the future when large projects in New York City come up for consideration.

There exists sufficient air quality monitoring information for New York City, so that little additional measurement of *background levels* needs to be done for a new project. However, EPA Region II has called for the use of more sophisticated numerical models for large projects in New York City, and monitoring information for typical highway sections is needed to calibrate these models. For large projects, FHWA, NYDOT, EnCon and EPA will review jointly the air pollution consultant's scope of work and verify its adequacy, and further will agree to such details as the height and location of the probes to be used in collecting monitoring data. FHWA staff observed that they had "found out from Westway that this sort of agreement was necessary."

7. Other issues.

a.) "classic" projects.

An FHWA staff member noted that the indirect source regulations are not really oriented toward the same concept of a highway project that is embodied in FHWA regulations. In the "classic" case for which FHWA regulations are written, the EIS is written before location approval so that such details as the placement of interchanges would not be known at the time of EIS preparation. The staff member said that most of the projects today are design alternatives rather than location alternatives. If, however, a classic location stage EIS was prepared at an earlier stage, the staff member said that it might be necessary to file a supplemental EIS and go back to EnCon for indirect source approvals. According to FHWA, most new projects requiring indirect source review do not have location alternatives: for example, replacing a two-way street with a one way pair. As a result, an abbreviated process can be followed for highway projects, for which it is possible to perform air quality analyses which are suitable for both EIS and indirect source requirements. The FHWA staff member observed that the "classic" project is now an exception to the rule, but acknowledged that re-writing the FHWA regulations to reflect this general change in project scope would be a monumental task.

b.) Induced growth.

EPA Region II staff are concerned that none of the reviews for air quality impacts of highway projects give sufficient attention to problems of induced growth. They would like to see some treatment of basic questions about the type and level of mobility which ought to be provided in each project area. They feel that the basis for good land use planning is taking a "look at what *should* be done," and then ensuring that there are sufficient controls, through zoning, for example, to enforce the plan. EPA staff see careful land use planning with adequate controls as the only reasonable mechanism for coping with the induced growth which results from transportation projects and increases adverse air quality impacts. This implies, of course, that enough is understood about the relationship among transportation, land-use, and air quality to permit such judgments.

IV. OREGON

Overview

The State of Oregon has operated the current indirect source review program since the end of 1974. It was adopted initally in response to an EPA requirement that all State Implementation Plans incorporate an indirect source review component. The program applies statewide to proposed facilities with the potential for causing or contributing to vehicle emissions of a pollutant for which there exists a state or federal standard. Among the facilities are:

- highways and roads;
- parking facilities;
- retail, commercial, and industrial facilities;
- recreation, amusement, sports, and entertainment facilities;
- airports;
- office and government buildings;
- apartments and mobile home parks;
- educational facilities; and
- religious facilities.

Developers of such facilities are required to submit an application with data about the projected traffic and air quality impacts. After a suitable period for analysis and comment, the reviewing agency (either the Oregon Department of Environmental Quality or a regional agency designated by the department) issues either an unconditional approval and permit for construction, or a conditional permit, or, in an extreme case, a denial of the permit altogether. Of more than 250 projects reviewed through 1977, not one was denied a permit. However, several projects were modified to mitigate negative impacts.

Criteria for Applicability of Indirect Source Review

Throughout the state, an application must be submitted for each proposed development meeting any of the following conditions:

- having a parking area of 1,000 or more spaces;
- including a highway with average daily traffic (ADT) of 50,000 or more, or a highway modification with an ADT increment of 25,000 or more;
- including a new airport with 50,000 or more aircraft operations per year, or an airport modification causing an increase of 25,000 or more operations per year.

A highway or airport qualifies for indirect source review if the threshold values will be reached within the first ten years of operation.

More stringent criteria apply in the urbanized areas of the state. In the counties where Salem, Eugene, and metropolitan Portland are located, the parking threshold is 500 spaces (new or modified) and the highway threshold is 20,000 vehicles per day for a new facility, or 10,000 per day for a modified facility. In any city of 50,000 or more (Portland, Salem and Eugene), and within 5 miles of its boundary, the parking threshold is 250 spaces, except in the city of Portland itself, where the parking threshold is 150 spaces. In all cases, the threshold values apply to a series of incremental improvements to a facility which individually are not subject to review but together would qualify. By contrast with the EPA criteria from 40 CFR 52.22(b), (see Figure 2.1) it is apparent that Oregon has adopted more stringent standards statewide, and keyed them to the magnitude of the pollution problem.

Traffic Circulation and Parking Plans

For a facility which qualifies under one of these criteria, the exact form of the application and permit procedure will depend on whether or not the locality (city, county or regional government) has submitted an acceptable traffic circulation and parking plan. Such a plan may be required of all areas in Oregon which cannot attain and maintain the state or national ambient air quality standards. A plan must include:

- a parking space ceiling for the area(s) in question;
- traffic and transportation controls which are sufficient to provide for attainment and maintenance of the standards;
- evidence demonstrating the existence of rules, regulations, ordinances, administrative procedures, enforcement programs, and firm assignments of responsibility necessary for the implementation of the plan;
- estimated air quality levels resulting from implementation of the plan; and
- documentation of the assumptions upon which the plan and associated analyses have been based.

Each plan is prepared by a local jurisdiction and approved by the Department of Environmental Quality (DEQ) or by the regional air quality control agency (if there is such an agency) after a public hearing and 30 day review period. The local jurisdiction must assess progress under the plan annually and make revisions as necessary to ensure attainment (and maintenance) within the prescribed schedule. Approval may be revoked by DEQ or the air quality agency if the plan is deemed inadequate.

Even where the State currently projects no violation of the air quality standards, local jurisdictions are encouraged to submit traffic circulation and parking plans for approval to ensure that standards will be maintained in the future. The incentive for any locality to develop an approvable plan (aside from the legal requirement) is the streamlining effect it has on the indirect source review procedure. Basically, if a developer can demonstrate compliance with an approved plan, only a short version of the indirect source review application is required.

The Application Procedure

Where an approved parking and traffic plan is on file, the developer must submit a written statement from the appropriate agency indicating that the proposed facility is "consistent" with the plan. If this is done, an abbreviated form of the permit application can be submitted with the following information:

a) for all facilities
    - the exact location of the site;
    - a description of the prior use of the site;
    - a site plan, including exact position of parking spaces;

b) for parking facilities
    - a ventilation plan for enclosed parking;
    - a statement of the proportion of unused parking capacity (as allocated in the parking and traffic plan) taken up by the proposed facility;

c) for highways
    - an estimate of the effect on total VMT in the area covered by the applicable parking and traffic plan.

Where there is no approved parking and traffic plan, considerably more information must be submitted with each application. For highways, this includes:

- a map showing the alignment of the highway, location of exits, and topography in the vicinity;
- current average and maximum daily traffic on the highway;
- maximum one-hour and eight-hour traffic levels for the year in which the maximum air quality impact is projected (and for other years if the highway will cause or exacerbate a violation of the ambient standards);
- estimated vehicle speeds for the average and peak traffic volumes (in the years indicated above);
- an analysis of the highway's impact on other modes;
- alternatives to the proposed highway design which would mitigate adverse impacts;
- an assessment of compatibility with the applicable regional transportation plan (including the long-range and the transportation systems management elements);
- an estimate of the development induced by the highway--residential, commercial, and industrial--and an air quality assessment of that development;
- estimates of all traffic effects on highways, streets, etc. within ¼ mile of the proposed facility;
- an areawide air quality analysis of the impact of the highway on CO, NOX, oxidants and particulates (for the analysis years defined above), based on an estimate of changes in VMT resulting from the highway and average emission factors for the year(s) in question:
- a localized air quality analysis in the vicinity of the highway for each analysis year, based on monitoring at reasonable exposure sites and an acceptable diffusion model (CO and particulates only).

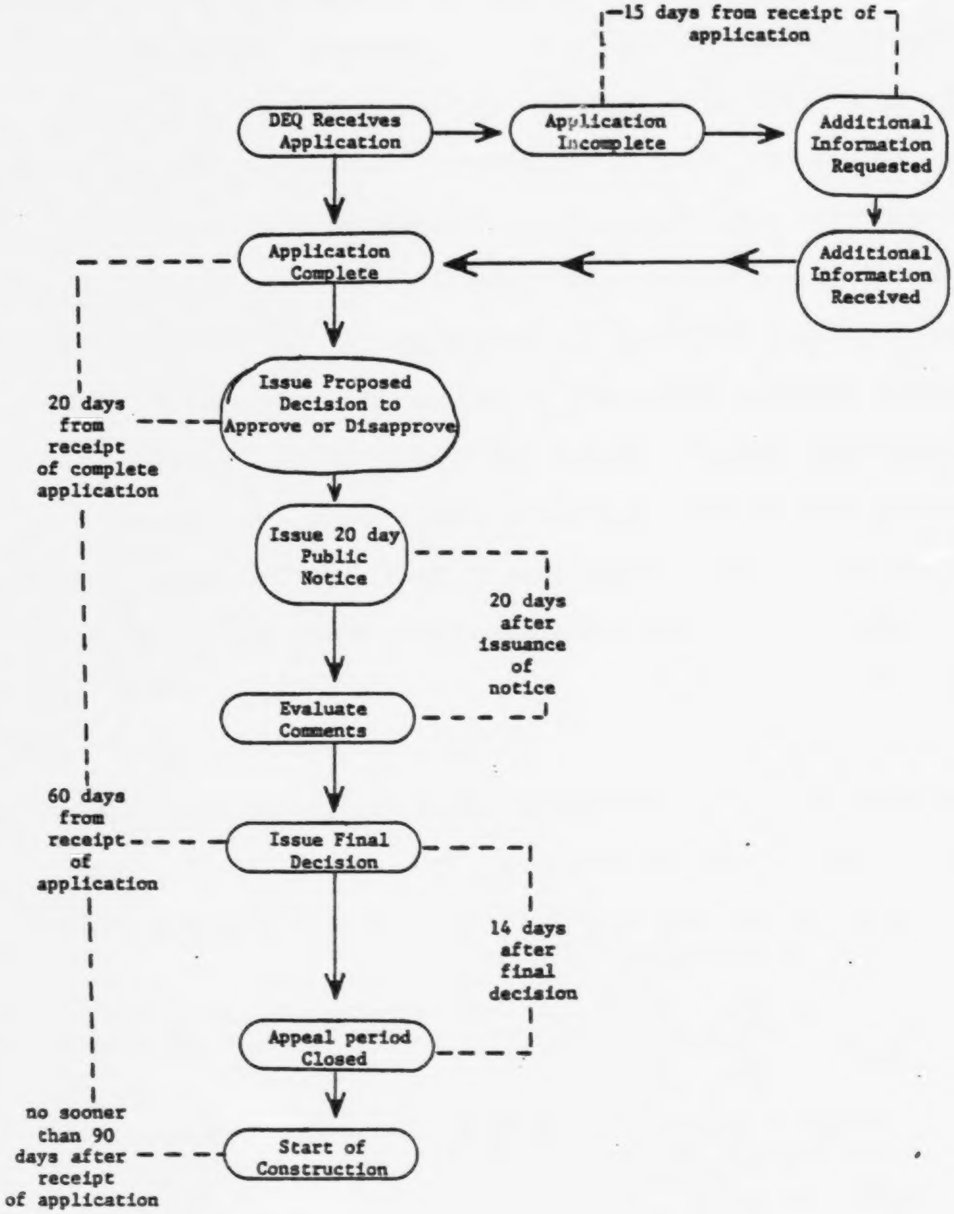
For parking facilities and airports, similarly detailed information is required.

When DEQ receives the application, the information is reviewed for completeness. Any further data must be requested within 15 days of receipt. When the application is complete, the department has 20 days in which to issue a proposed decision and a request for public comment (the public has 20 days following issuance in which to comment). Within 60 days of receiving a completed application, the agency must issue a final decision. This decision may be disapproval, unqualified approval or conditional approval; possible conditions include the development (by the applicant) of an "Indirect Source Emission Control Program" sufficient to ensure attainment and maintenance of the standards. Following the final decision, there is a 14 day appeal period, after which construction may commence. Appeals are brought before the State Environmental Quality Commission for a final ruling. In any case, construction may not begin sooner than 90 days after the initial submission of an application. A schematic diagram of the review process is shown in Figure 4-1.

The criteria to be used in determining whether or not to issue a permit are stated in the Indirect Source Rules. They are:

- a source must not cause or contribute to a violation of the State Implementation Plan;
- a source must not cause or contribute to a delay in the attainment of or cause a violation of a state ambient air quality standard; and
- a source must not cause or contribute to a violation by any other indirect source.

Figure 4.1: Oregon Indirect Source Review Process


15 days from receipt of application
DEQ Receives Application
Application Incomplete
Additional Information Requested
Application Complete
Additional Information Received
Issue Proposed Decision to Approve or Disapprove
20 days from receipt of complete application
Issue 20 day Public Notice
20 days after issuance of notice
Evaluate Comments
60 days from receipt of application
Issue Final Decision
14 days after final decision
Appeal period Closed
no sooner than 90 days after receipt of application
Start of Construction

Experience with the Indirect Source Regulation

Since January 1, 1975, over 280 facilities have been reviewed by DEQ or by a regional air quality control agency. Only a small number of these were highways (fewer than 30 to date), while the remainder were parking facilities of one type or another. Not one facility has been disapproved or denied a permit,* but *all approvals have been issued with conditions.* The conditions typically require the developer to modify the facility at his own expense in a way that reduces pollution (for example, by changing the access and egress points of a parking lot or by dedicating one freeway lane in each direction to high-occupancy vehicles). Some of the conditions imposed on highway projects are:

- a monitoring program,
- periodic reports to the department,
- expiration dates (for an interim or temporary facility),
- transit incentives, and
- traffic improvements.

An explicit tradeoff policy has been followed in some cases, allowing pollution-generating features (like parking spaces) if compensating measures are included. These are based on quantitative emission tradeoffs and apply only in areas which violate the standards. Under the tradeoff policy, a developer (in a non-attainment or non-maintenance area) would be allowed to construct a facility which increased the total pollutant burden only if he could implement some measure (or measures) in the same area which would decrease pollution at least enough to compensate for the increase due to the facility. In one case, a motor inn was approved only after the developer agreed to underwrite a park-and-ride facility. This illustrates another innovative aspect of Oregon's permit procedure: cost-sharing by the developer for certain mitigation measures. The most common form of cost-sharing is payment of state or local matching funds by the developer for federally-funded traffic or transit improvements.

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*DEQ went to the Environmental Quality Commission once to seek a partial denial for a large shopping center, but was rebuffed.

The number of highways eligible for review has been limited by the recent drop in highway development. However, many other road projects are exempted because of levels specified in the regulation. Although the federal EIS requirement applies to many of these omitted highways, the general opinion of those involved in ISR was that more realistic threshold levels would be closer to 50% of the present ones. This would enable the Department to have more direct influence over a range of highway improvements which potentially can have severe air quality impacts (especially in non-maintenance or non-attainment areas).

There has been criticism of the review process from many quarters, but only the shopping center lobby mounted a court challenge against the regulation. On a procedural point concerning its adoption, the International Council of Shopping Centers attempted to have the regulation thrown out. However, the suit was not successful and, in all likelihood the Environmental Quality Commission would have re-adopted the regulation with a revised statement of public purpose, but with no substantive changes.

Coordination with other Air Quality Reviews

For highways, air quality is considered at several points in the planning and design approval process other than the indirect source review. Environmental Impact Statements under NEPA are perhaps the most important of these reviews, and the fear has been expressed that indirect source permit programs as applied to highways are largely redundant in light of the Federal EIS requirement. (Oregon does not have a state EIS requirement.) But, for Oregon at least, this is true only in the sense that *sometimes* the same air quality information can be used to satisfy both requirements. Numerous differences were cited during our interviews, including:

- coverage of projects--The EIS does not apply to any project funded without federal participation. Thus, state and locally funded highway projects (which qualify) receive their only air quality review during ISR. On the other hand, the federal EIS potentially applies to many highways which fall below the ISR threshold levels.
- emphasis on air quality analysis--With its specific focus on air quality, the indirect source review can result in a better air quality analysis by exposing the assumptions and methods used in that analysis to greater agency and public scrutiny. In a Federal EIS, air quality is only one of many impact categories considered; unless the proposed highway becomes extremely controversial, the same scrutiny is not applied to the results of the air quality analysis.
- timing--The indirect source review occurs immediately prior to construction, while EIS preparation (including air quality impact assessment) is intended to be an integral part of the highway planning process (although EIS approval may come quite late, as well). Thus, project details which are crucial for air quality may be undefined at the time of EIS review but fully known during ISR review.
- role of the air quality agency--Without an indirect source review program, the role of the air quality agency in the EIS approval process is limited to commenting on the draft EIS. With an indirect source review program (under FHWA guidelines)

> the air quality agency has formal approval power over any highway for which an EIS is required, not merely when a review is undertaken. Thus, the very existence of an indirect source review affords the air quality agency a greater role in the EIS review process than otherwise would be the case.

From the viewpoint of air quality, indirect source review provides substantial additional leverage over the highway design and approval process. Yet this has not caused a duplication or significant increase in the amount of analysis performed for each project because the highway agencies have been careful to conduct air quality analyses for the EIS which also can satisfy the indirect source requirement. There have been no formal interagency agreements on the scope of analysis, but early consultation on what kind of information would satisfy the indirect source requirement has been the rule. In most cases, the completed EIS document contains sufficient data for an indirect source determination, and no further submission to the air quality agency is necessary. The regional FHWA office has encouraged this close coordination as a means of averting unnecessary delays in highway implementation.

Annual consistency assessment (under § 109 (j) of the Federal-Aid Highway Act) provides a second major air quality review. The scope of this review (i.e., what levels of highway planning--long range, TSM, TIP, project-by-project--are included) and the role of the air quality agency (i.e., should it have an advisory or binding opinion) have not been spelled out clearly in federal law or regulation, and differ somewhat around the country. But, in Oregon, the DEQ feels that its assessments of consistency for the long-range element and the TIP are virtually binding, and that a finding of inconsistency by the department would halt the flow of federal highway funds pending remedial action. (Note also that the DEQ has what amounts to project-by-project "consistency" powers under the highway approval process.) Since DEQ is the indirect source review agency as well, it is in a good position to require adequate air quality assessment in the earliest stages of highway system-level planning (e.g., the long-range element), to ensure that air quality is considered throughout the planning and design process for specific highways (by scrutinizing the TIP and EIS air quality analyses), and to prevent the construction of highways with objectionable air quality impacts when the other reviews have failed. Perhaps the most important benefit of the indirect source review is the power to require specific operating policies (such as high-occupancy vehicle lanes) as a condition of the permit. This is a means of assuring that features intended to mitigate adverse air quality impacts which have been promised during the design phase actually are implemented and remain in place.

In summary, although the indirect source review is but one of many air quality reviews to which new or modified federally-funded highways in Oregon are subjected, its role is central in ensuring that highways which do get built have the minimum possible adverse effect on air quality. Much of the DEQ's pivotal role in air quality assessment is based on powers related to the indirect source review, particularly the project-by-project approval included in each EIS and the specification of operating policies for highways in attainment or maintenance areas. For better or for worse, air quality impacts in all likelihood would receive much less weight in highway decision-making without the indirect source program. Nevertheless, the future of ISR is uncertain as of this writing. Funds for administering the program will expire at the end of the current fiscal year, and no extension is anticipated. This will place the DEQ in the awkward position of enforcing a regulation without earmarked resources, and no-one is certain how much enforcement can be "piggy-backed" on other agency programs. Perhaps in anticipation of this, several streamlining changes have been implemented or proposed in recent months, including an expanded set of circumstances under which a short-form application can be filed, and replacement of the agency's permit denial option in favor of a requirement that a developer do "everything possible" to mitigate adverse impacts before a permit can be issued.

V. SEATTLE/TACOMA

Overview

Although Washington initially had a statewide indirect source regulation, only metropolitan Seattle retained the regulation after EPA delayed implementation of the nationwide indirect source program. From June 1975 to December 1977, Puget Sound Air Pollution Control Agency (PSAPCA) operated an indirect source permitting program in the Seattle/Tacoma area for major highways, airports and facilities with significant associated parking.

Under the program, developers of a proposed facility which exceeded the applicable threshold size were required to monitor existing CO concentrations in the area of the facility; to obtain traffic flow data for the highways affected by the facility; and to submit an analysis and all data to PSAPCA for review by agency personnel. Within 90 days (given a complete application), a decision was made to:

- issue an unconditional permit for construction;
- issue a permit conditioned upon certain modifications intended to mitigate adverse air quality impacts; or
- issue a formal denial of permission to construct.

In two-and-a-half years of operation, 50 facilites were reviewed in this manner.* Forty-three of these were approved unconditionally, six were approved with various conditions, and one was withdrawn. No permits were denied. PSAPCA abolished the regulation because they felt air quality improvements were minimal and the program occupied agency personnel who could have been used much more effectively on stationary source control. PSAPCA did retain certain air quality review powers under the State Environmental Protection Act.

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*This excludes the 20 or so sources reviewed under the statewide regulation.

History of the Program

The Seattle indirect source program originated in 1974 as a response to EPA's indirect source control requirement for State Implementation Plans. In August of that year, the Washington State Department of Ecology (DOE) implemented a "complex source" regulation applicable to major facilities throughout the state. Operation and enforcement of the program was delegated to regional and local agencies. For the four counties comprising the Seattle/Tacoma metropolitan area--King, Kitsap, Pierce, and Snohomish--the regulation was administered by the Puget Sound Air Pollution Control Agency (PSAPCA).

In late 1974, when EPA delayed implementation of its nationwide indirect source program, DOE altered the complex source regulation to remove any permitting authority but to continue the air quality analysis and publication of results. Six months later, in June 1975, the regulation was repealed completely. However, Seattle/Tacoma -- where pollution problems and development pressures were greatest--sought a continuation of the program. Simultaneously with the repeal of the DOE regulation, PSAPCA's Board of Directors adopted and "Indirect Carbon

Monoxide Source Control Regulation" patterned after the original DOE version. With several minor amendments in the intervening period, this regulation remained in force until December 1977.

Facilities Covered by the Regulation

As its name would indicate, the PSAPCA regulation concerned one pollutant only--carbon monoxide. The intent of the regulation was to give the air pollution agency a basis for controlling the development of new or modified facilities which were likely to create or exacerbate CO hot spots, or otherwise interfere with attainment and maintenance of the ambient CO standards. The regulation defined an indirect CO source as any "building, structure, facility or installation" which could increase indirectly the ambient concentration of carbon monoxide emitted by automobiles. Several facility types were mentioned specifically:

- highways and roads,
- parking lots and garages,
- shopping centers,
- recreational centers and amusement parks,
- sports stadiums,
- airports, and
- commercial and industrial developments.

Not all such facilities were covered by the regulation, but only those which could have a significant effect as indicated by certain size criteria. These criteria are summarized below*:

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*Contrast these with the EPA criteria shown in Figure 2.1.

- highways

  for a new highway, 20,000 or more vehicles per day (both directions).

  for a modified highway, an increase of 10,000 or more vehicles per day (both directions).

- airports

  for a new airport, 50,000 or more aircraft operations per year, or at least 1,600,000 passengers per year (within ten years of opening).

  for a modified airport, an increase in annual operations or passengers equivalent to the criteria for a new airport.

- parking

  for a new or modified parking structure (except in Kitsap County), any increase of 250 or more parking spaces.

  in Kitsap County, new sources of 1,000 or more parking spaces and any increase of 250 or more spaces to an existing source.

To guard against piecemeal construction which escapes the permit process but which, in sum, could have a significant effect on air quality, the regulation explicitly applies to any series of incremental modifications which meets the above criteria. However, there is no attempt to define the time horizon of this provision, or to specify how firm the modification strategy must be before it is subject to the regulation (i.e., must the plans be on paper, or is the intent to expand enough of a basis for inclusion?).

The Permit and Review Process

Any facility meeting these criteria had to receive a permit from the PSAPCA before construction could commence. The first step in the permit process was a verbal consultation between the developer and agency personnel. At this time, the agency provided information about the severity of existing CO problems at the site and specified whether or not the developer had to carry out CO monitoring prior to submitting the application. Monitoring was required only in areas suspected of having elevated CO levels. The intent was to provide at least one CO reading for peak traffic under "stable" atmospheric conditions as a valid basis for modeling and analysis. Between fifteen and thirty days of monitoring, carried out by qualified personnel according to agency guidelines, were required to ensure at least one "stable" reading. The EPA reference method for carbon monoxide was recommended.

After initial contact with the agency, developers would gather data and prepare the application for submission. (The application forms and guidelines are shown in Appendix D). The application provided PSAPCA with at least the following information:

- location--the exact location and layout of the facility and affected streets.
- traffic flow data--for any highway affected by the facility (or if the facility itself is a highway), detailed data about roadway configuration and traffic flow. A highway was "affected" if it met any of these criteria:

  --an intersecting or abutting roadway with 500 or more average daily traffic (ADT);
  --an arterial within 500 meters of the facility, having 1000 ADT or more;
  --a freeway within 1 km. of the facility;
  --any other road, street, arterial or freeway specified by the agency.

  For each affected highway, the physical dimensions were required, along with volume and average speed estimates in each direction for the current year and for one or more future years after the projected completion of the facility.

The volume data included the peak hour volumes and speeds and the peak 8-hour volumes and speeds, along with the estimated percentage of heavy-duty vehicles in each case. (Refer to Appendix D.4 for a copy of the form used for submission of traffic flow data.) If more than one highway was affected, the same 8-hour period would be shown for each highway. In general, the "8-hour peak" chosen was for the most severely affected facility.

- CO impacts--for any location in or affected by the facility, the maximum existing and projected CO concentrations to which people were likely to be exposed. Existing concentrations could be those measured, if monitoring was undertaken, or could be estimated through modeling (using the EPA Highway Model or an equivalent procedure). Projected concentrations were modeled. In all cases, projections were required for specific future years: For highways, either 10 years after opening or another year for which regional traffic projections had been made as part of the long-range planning process; for airports, the first, fifth and tenth years after opening; for shopping centers, the second year after opening; and for other parking facilities, the first year after opening.

- parking facility data--when parking facilities were involved, the total area, number of spaces, layout of spaces, and vehicle movement data within the facility. This included the number of vehicles arriving at and leaving the facility as well as the average access and egress times during the peak hour and during the peak eight hours.

- VMT mitigation statement--in all but Kitsap County, a description of steps undertaken to minimize the VMT associated with a facility. As a condition of the indirect source review procedure, developers were expected to enhance the attractiveness of public transit, carpooling, bicycling, and other alternatives to the single-driver auto by providing transit shelters, preferential parking for carpools, bicycle storage facilities and the like.

With all of this information gathered and organized in the required format, the developer would submit an application for review by the agency. Filing and review fees were levied, according to the facility type:

• Filing and Publishing Fee	$ 75.00

- Plan Review Fees:

250-499 Parking Spaces	$ 50.00
500-999 Parking Spaces	$ 100.00
1,000-1,999 Parking Spaces	$ 200.00
2,000-3,000 Parking Spaces	$ 500.00
Over 3,000 Parking Spaces	$1,000.00
New and modified highways or roads	$ 200.00

The application also was submitted to other governmental agencies whose approval was necessary for construction of the facility (e.g., State Department of Ecology when a state EIS is required, applicable city or county, etc.).

After receiving an application, PSAPCA had 15 days in which to request more information about the facility, about the existing traffic and pollution conditions around the facility, or about the modeling procedures used to simulate pollution concentrations. Within 30 days of *receiving all necessary information*, the agency then released its own assessment of the likely CO effects, along with a proposed decision on approval or disapproval of the permit. If the CO modeling process undertaken by the developer was adequate, PSAPCA primarily reviewed the application during this thirty-day period and determined whether all feasible mitigation measures had been investigated. Otherwise, the agency used its own computerized CO models to determine whether or not a violation of the applicable CO standard would occur. The EPA Highway model, the CALINE model, and the Washington State Department of Ecology Complex Source model all were available and acceptable to the PSAPCA for this purpose.

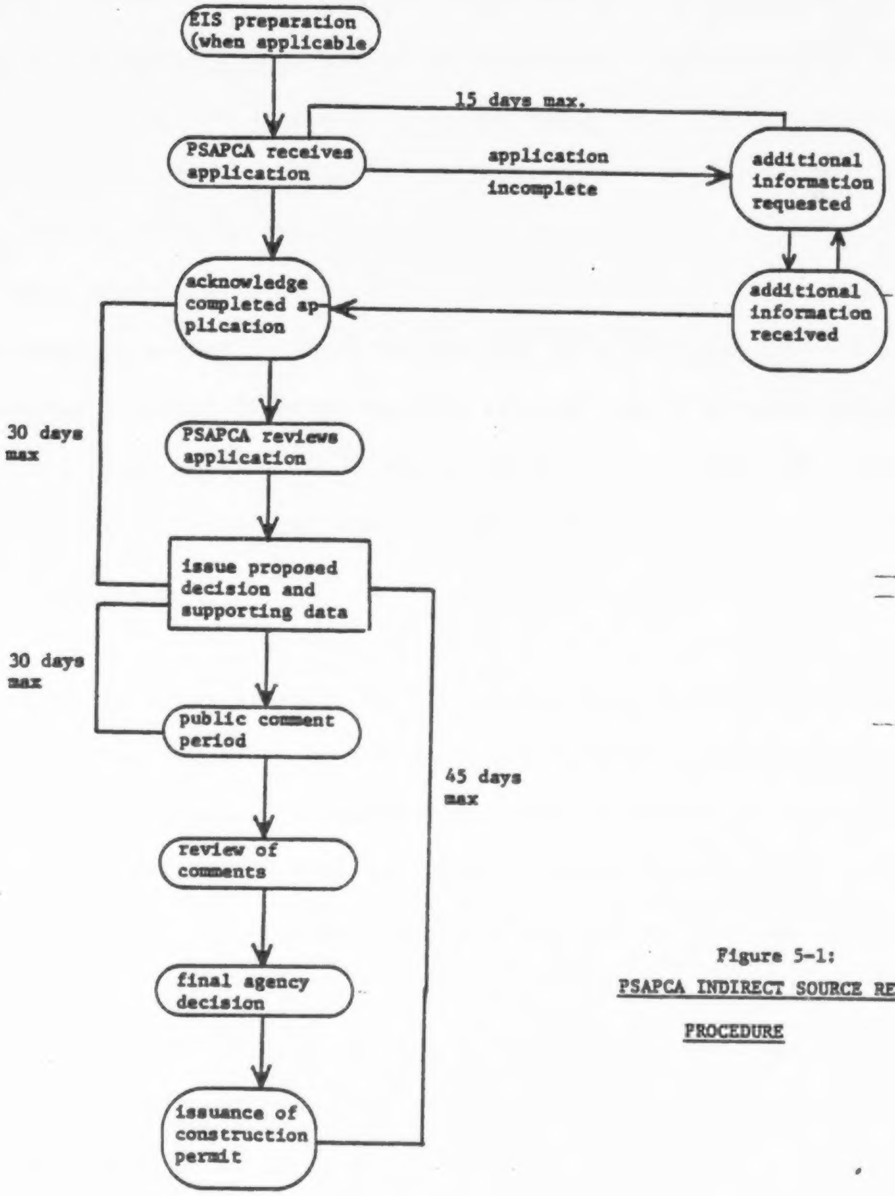
EIS preparation (when applicable)
PSAPCA receives application
15 days max.
application incomplete
additional information requested
additional information received
acknowledge completed application
30 days max
PSAPCA reviews application
issue proposed decision and supporting data
30 days max
public comment period
45 days max
review of comments
final agency decision
issuance of construction permit

Figure 5-1:
PSAPCA INDIRECT SOURCE REVIEW PROCEDURE

If no violation of the standard was projected, PSAPCA issued a notice of public approval, published the application and its own analysis results, and, if no significant objections were raised during the ensuing comment period, issued a permit 45 days later. The permit was good for 2 years. If the facility caused a violation in an area which otherwise would not violate the standards, the agency imposed conditions of operation which were sufficient to prevent the violation, including, where appropriate, road modifications, revised signalization, transit improvements and other major changes to the transportation system. When the violation could be prevented through such measures, the agency issued a notice of proposed "conditional approval", and, barring adverse comment, issued a permit 45 days later. The developer was bound to the conditions of operation. When the violation could not be prevented, the permit in theory would have to be denied.

For non-attainment areas (i.e., where the CO standard could be met in any case), the regulation precluded denial of the permit under any circumstances, but it required the PSAPCA to impose all reasonable conditions of operation to minimize the degree of exacerbation. The same public comment and approval procedure applied here as for the previous cases.

Once a permit was issued PSAPCA had no further explicit responsibility under the indirect source regulation. The developer was bound to carry out the conditions of the permit, and any failure to do so (without adequate justification) could lead to enforcement through the courts. Any significant change in the design of the facility would necessitate a reapplication.

Experience with the Review Process

During the period of operation 51 applications were received.* The breakdown by category of facility is shown below:

Type of Facility	Number of Applications
Highway	1
Shopping Center	15
Park/Ride Facility	9
Employee Parking	13
Airport Parking	1
Residential Parking	6
Miscellaneous Parking	6
Total	51

Only one highway is included in this group - the remainder are all parking facilities. The absence of highways can be attributed to two reasons: there was a lull in the implementation of major system changes to the highway network, and routine highway improvements rarely - if ever - had enough of an effect on traffic to require a permit under the criteria.

Of the 50 parking facilities included in this group, by far the majority had fewer than 1000 spaces, and only a relative handful had over 3000. Of the 50, 43 were approved unconditionally, six were approved with conditions, and one was withdrawn. In general, shopping centers showed the greatest potential for exacerbating pollution levels - three of the six conditional approvals were for shopping centers with more than 4,000 spaces each. In these three cases, the conditions ranged from "make essential road improvements" to "provide ambient air quality monitoring" to "revise bus circulation plans and passenger loading areas". A fourth conditional approval also was for a shopping center, but with only 617 spaces; the single condition called for construction of a new auto access road.

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*As explained below, the highway was not reviewed. Hence, 51 applications were received, but only 50 were reviewed.

PSAPCA did not act on the sole highway - I-90 in Seattle. I-90 was a large and very controversial project subject to the full scrutiny of federal and state environmental reviews. As a principal commenting agency for the EIS, PSAPCA had considerable opportunity to influence the air quality analysis and the ultimate determination of consistency with regional air quality programs. For a highway of this magnitude, all of the air quality goals of the indirect source program were addressed in other review procedures, in many of which PSAPCA was directly involved. Thus, the agency did not anticipate a separate indirect source review, but intended to issue a permit when all of the other environmental reviews were complete. In general, agency personnel felt that highways were carefully scrutinized for their air quality impacts independent of the indirect source review procedure - especially with a competent state Department of Ecology and very supportive (of air quality goals) FHWA regional office to oversee the various environmental reviews.

The review procedure for the typical project required about 1 person-month of agency effort, with that time divided among:

- interpreting and validating air quality data;

- modelling with the agency's own computer programs;
- documenting the agency's decision;
- meeting with the developer and other interest groups;
- testifying at judicial proceedings to review agency decisions.

Thus, over a two and a half year period, average manpower requirements were about 1.7 persons full time. In fact, project review time was highly variable - most projects required one or two person weeks (or even less) while a handful of the most controversial (typically regional shopping centers) literally absorbed months of staff effort. This happened for two reasons primarily: for smaller, less controversial projects, the developer's air quality estimates often could be accepted without additional modelling by the agency, but for major projects PSAPCA pretty much had to calibrate and run its own models; and, for projects which seemed likely to generate stiff opposition, a complete and accurate record of agency air quality analyses had to be maintained against the possibility of court action.

From all of this effort, there is general agreement that some air quality gains were realized. Slight but measurable (according to the models) reductions in pollution resulted from the conditions imposed by PSAPCA (or included by the developer to avoid agency requirements) and there seems little doubt that the indirect source review process encouraged all developers to plan for better transit access to large facilities, and for smoother traffic flow. In addition, most people interviewed felt that a significant number of proposed facilities had been abandoned or reduced in size, either in order to avoid the permit process or to lessen the air quality impact in already polluted areas. Against these benefits, several drawbacks of the process were cited in the interviews:

- Indirect source review occupied agency personnel who might otherwise have worked on another program with greater effect. PSAPCA operates on a fixed budget which is not allocated initially to specific programs. Thus, the staff members who were running the indirect source review could have been working on stationary source control instead. PSAPCA believed that there was much to be gained from greater stationary source control in the Seattle area and that they had too few staff members to carry it out. The agency thought it might be more "cost effective" for them to close down the indirect source review and to reassign the personnel to other programs.

- The indirect source review relied heavily on models which did not prove to be very accurate. The decisions required by the ISR process implied the ability to make accurate predictions of pollution levels resulting from alternate facility designs and traffic and transit plans, yet the available models provided only approximate, relative estimates with a wide band of uncertainty. When the assumptions which underlie these models were brought into the open, they invariably presented a generous target for criticism, and often formed the basis for protracted controversy over the validity of agency decisions. Even worse, PSAPCA itself was uncertain that decisions ought to be made on the basis of these uncertain inputs.

- PSAPCA staff think ISR provided an opening for opposition based on other than air quality considerations. Although opposition to agency approval relied on technical objections to modeling procedures, there was a widespread feeling that interest groups used the indirect source review to bring about land use decisions which could not be achieved through normal planning and zoning procedures. For example, opposition to a major regional shopping center located just within the limits of a small city near Seattle was voiced primarily by business interests in another small, adjacent community who feared the decline of their own retail district. Agency staff interviewed felt that however great a need there was for regional land-use decisionmaking, an air quality review was not the proper forum, nor was PSAPCA the right agency, to conduct that process.

On balance, PSAPCA preferred to drop the regulation and reassign the staff to stationary source control. Early in 1977 - possibly under political pressure from constituents and business interests - the Seattle Mayor's Office suggested repeal of the regulation. A state EIS on repeal was prepared by PSAPCA and released to the public in August (see Appendix D.5). In this document, the agency outlined several ways in which other programs could be used to retain some control over indirect sources even without the review:

- in commenting on draft EIS's and negative declarations, the agency can suggest air quality analyses and mitigation measures to be performed or required by the lead agencies;
- under SEPA, NEPA, or the Clean Air Act, citizens could sue to prevent the construction of an indirect source which would result in violations of the CO standard.

Although it does favor repeal of the regulation, the EIS does not convey a strong feeling against indirect source review. This impression was reinforced during the interviews, when it became clear that serious opposition to the plan for repeal could lead to an indefinite delay in bringing the motion before the board. However, at the time (September, 1977) no such opposition had emerged - not even from the regional EPA office. The board finally voted to drop the regulation on December 8, 1977.

Had the regulation not been repealed, PSAPCA staffers believe that several simple changes would have improved the review process greatly. The first and most obvious is the provision of funds specifically earmarked for indirect source review, from either the state or the federal government. As the foregoing discussion implies, no one suggested that indirect source review was worthless, but that in comparison with other possible uses of limited funds within PSAPCA, it couldn't be justified. If the agency had not been forced to divert funds from the stationary source program, then the indirect source review might not have seemed so onerous.

The second suggested change concerns the clause in the regulation which prevented the agency from stopping development in a non-attainment area. (Some of the opposition to the regulation stemmed from the unequal way in which it applied to development in attainment and non-attainment areas, e.g., it was much harsher and more explicit in the case of attainment areas, where a facility might cause a violation which would not occur otherwise.) Instead of stating that a facility "cannot prevent the attainment", the wording might have included both attainment and non-attainment areas by stating that a facility "cannot delay the attainment for more than 6 months."

Relationships with other Environmental Reviews

All highway projects and many other major facilities to which the Indirect Source Review (ISR) applied also were covered under the Washington State Environmental Policy Act (SEPA). Under SEPA, PSAPCA was considered to be the "agency with expertise" on air quality and, as a result, received for review all State Environmental Impact Statements and "Declarations of non-significance". Where both the ISR and SEPA applied, there was preliminary consultation on appropriate air quality analysis methodologies to ensure that the resulting state EIS would be acceptable to PSAPCA without further work. For facilities covered by SEPA but not by the Indirect Source Review, PSAPCA reviewed and commented on the impact report and advised on methodological issues, but performed no analysis "in-house" as it did for the ISR. In this case the agency's opinion was advisory, not binding.

As the earlier discussion revealed, actual overlap between the federal EIS and the Indirect Source Review was minimal - a situation due in large part to the lull in major highway development experienced by metropolitan Seattle. In the one case where both EIS and ISR did apply (I-90), PSAPCA steered clear of any involvement beyond advice and comment on air quality analysis methodology. (This despite the clear veto power the agency could exercise if it so desired.) Generally, PSAPCA viewed its role in the EIS process as essentially advisory, and definitely outside the major arena of activity. No clear justification for this posture was offered during any of our interviews, but several factors might be involved:

- PSAPCA's desire to limit its involvement in the protracted controversies which can arise over major highway projects, and
- the willingness of other agencies to champion air quality goals throughout the EIS process (particularly the EPA and FHWA regional offices).

A third major air quality review - the consistency assessment - was not linked in any way to the ISR. The Puget Sound Council of Governments (PSCOG), serving as the designated MPO for metropolitan Seattle, annually performed a consistency review of its federally-mandated plans and programs, during which it maintained no formal contact with PSAPCA. However, PSCOG had begun a program of identifying CO problem areas at the time ISR was dropped (based on an analysis of the link volumes and average speeds using the regional highway network, and on monitoring at suspected areas of heavy CO concentration). They hoped to lower the pollution levels at these hot spots through measures developed under the Transportation Systems Management (TSM) program. Of necessity, such a localized approach by PSCOG would have required closer coordination with any agency conducting an ISR, at least to guarantee complementary decision-making.

APPENDIX A: SUPPORTING MATERIAL FOR CONNECTICUT

A.1: Connecticut Indirect Source Regulation A-2

A.2: Connecticut Application for an Indirect Source Permit for Highways A-7

A.3: Carbon Monoxide Impact Analysis--Preliminary Evaluation A-15

A.4: Outdated Indirect Source Permit Criteria A-31

APPENDIX A.1: Connecticut Indirect Source Regulation

SECTION 19-508-100 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES IS AMENDED AS FOLLOWS:

Sec. 19-508-100. Permits for construction and operation of indirect sources.

(a) DEFINITION OF AN INDIRECT SOURCE AND [A]applications for indirect source construction permits. (1) NOTWITHSTANDING THE PROVISIONS OF SECTION 19-508-1(h), FOR THE PURPOSE OF THIS SECTION AN INDIRECT SOURCE OF AIR POLLUTANTS MEANS ANY HIGHWAY WITH A DESIGN CAPACITY OF 1,000 VEHICLES PER HOUR IN ANY ONE DIRECTION, OR ANY AIRPORT DESIGNED TO ACCOMMODATE 50,000 COMMERCIAL FLIGHTS PER YEAR. Effective October 1, 1974, no person shall construct, modify, install or cause the construction, modification or installation of any indirect source of air pollutants or part thereof as specified in subsections (a)(2) or (a)(3) without applying for and obtaining an indirect source construction permit from the commissioner.

(2) A new or modified indirect source shall be required to obtain an indirect source construction permit if the operation of the indirect source will or may result directly or indirectly in aggregate total emissions of air pollutants in excess of fifty (50) tons annually. Notwithstanding the provisions of subsection (a)(5), the commissioner shall publish by September 1, 1974, guidelines to assist owners or operators of new or modified indirect sources in determining whether a source is subject to this section.

(3) Other indirect sources subject to permit review.

(i) Effective January 1, 1975, in addition to the requirements of subsection (a)(2), the commissioner may require an indirect source construction permit of any new or modified indirect source which will or may result in a substantial reduction in the quality of the air resource. Any increase in the ambient pollutant concentration in excess of fifty percent (50%) of the amount determined by subtracting the existing ambient pollutant concentration from the applicable ambient air quality standard shall be deemed to be a substantial reduction in the quality of the air resource. At his discretion, the commissioner may specify a percentage smaller than fifty (50%) to be used for the purposes of this subsection in any region or subregion of the state.

(ii) The commissioner shall give thirty (30) days prior notice of his intention to apply the provisions of subsection (a)(3)(i) in a region or subregion and shall specify the percentage that shall apply in that region or subregion. At his discretion, the commissioner may hold a public hearing in that region or subregion in order to allow interested parties to comment.

(4) Those new or modified indirect sources which are not required to obtain an indirect source construction permit under subsection (a)(1), (a)(2) or (a)(3) shall, upon request of the commissioner, furnish information to him which may be of a type and form similar to that required of applicants for indirect source construction permits.

(5) The commissioner may publish and from time to time revise guidelines for any region or subregion which will assist owners or operators of new or modified indirect sources in determining whether they are required to obtain an indirect complex source construction permit under subsections (a)(1), (a)(2) or (a)(3) or whether they may be required to furnish information to the commissioner under subsection (a)(4).

(6) Application for an indirect source construction permit shall be made by the owner or operator of the proposed indirect source on forms furnished by the commissioner. Each application shall include siting information; descriptions of the buildings, structures, facilities or installations involved; the nature, source and quantity of uncontrolled and controlled emissions, both direct and indirect; traffic flow information; the proximity of the indirect source to existing and projected transportation services; and such other information as the commissioner may require.

(7) No new or modified indirect source shall be exempt from the permit requirements of this subsection because of a division of ownership or because of the pattern or timing of development.

(8) For the purpose of determining whether construction or modification of an indirect source was commenced prior to October 1, 1974, construction or modification shall be deemed to have commenced for any portion of an indirect source when site preparation, including clearing and grading is complete and the following four steps have also been completed:

(i) Detailed plans of the proposed indirect source are available and have received all necessary approvals required by federal, state or local statutes, ordinances, regulations or procedures;

(ii) Environmental impact statements have been prepared and reviewed as required by federal or state statutes, regulations or procedures;

(iii) All necessary building permits for site preparation and foundation construction have been issued in accordance with state or local statutes, ordinances, regulations or procedures;

(iv) The installation of structural components or materials has started as part of a continuous program of construction.

(b) Standards for granting indirect source construction permits. (1) No indirect source construction permit shall be granted until the commissioner finds, upon evidence submitted by the applicant or otherwise made part of the application record, that;

(i) The new or modified indirect source for which a permit is requested will be constructed and will operate in accordance with all applicable statutes or regulations administered by the commissioner.

(ii) Such new or modified source will operate without preventing or interfering, directly or indirectly, with the attainment or maintenance of any applicable ambient air quality standard.

(iii) Such new or modified source will contain such instrumentation or facilities for monitoring, recording, sampling and testing air quality and related factors as the commissioner may reasonably require.

(iv) Such new or modified source will not result, either directly or indirectly, in deterioration of air quality in 1975 or later in any region or subregion of the state.

(2) Notwithstanding the provisions of subsection (b)(1)(i) obtaining an indirect source construction permit shall not be considered compliance with the requirements or standards of any statute or regulation administered by the commissioner other than the requirements of subsection (a)(1).

(c) Action on applications for indirect source construction permits. (1) An application will not be deemed to have been received by the commissioner until all information, papers and documents required in support of the application have been submitted in proper form. The commissioner shall acknowledge the receipt of an application within ten (10) days.

(2) Notwithstanding the provisions of subsection (c)(3), the commissioner shall not issue a decision approving or denying an application for an indirect source permit until the applicant:

(i) Shall have made available for thirty (30) days, in the region in which the proposed construction or modification will be located, a copy of the application and a copy of the commissioner's preliminary evaluation of the air quality data contained in the application,

(ii) Shall have published by prominent advertisement in the region affected a notice of the location of the application and evaluation specified in subsection (c)(2)(i), above, and

(iii) Shall have posted in a manner prescribed by the commissioner at the site of the proposed indirect source, a notice that a permit has been applied for, and

(iv) Shall have submitted to the commissioner an affidavit certifying that the conditions of subsections (c)(2)(i) to (c)(2)(iii) have been met.

(3) Except where a public hearing is held under subsection (j)(4), the commissioner shall inform an applicant for an indirect source construction permit of the decision of the commissioner approving or denying the application within sixty (60) days of the receipt of the application. The Commissioner may, on notice to the applicant, extend the time for acting on the application an additional thirty (30) days, a total time of ninety (90) days. Said ninety (90) days shall be exclusive of the time allowed in subsection (c)(2).

(4) When a public hearing is held under subsections (j)(4) on an application for an indirect source construction permit, the commissioner shall inform the applicant of the decision approving or denying the application within thirty (30) days following receipt of the record of the hearing.

(5) The commissioner shall briefly set forth in any notice of approval or denial of an application for an indirect source construction permit the basis for the determination.

(6) The commissioner may impose any reasonable requirements, standards, or conditions upon approval of any permit to construct or modify.

(d) Revocation or modification of indirect source construction permits. (1) The commissioner may revoke or modify an indirect source construction permit if:

(i) The construction or modification authorized by the permit is not begun within one year from the date of issuance or such other period as is allowed by the permit; or

(ii) During construction or modification, work is suspended for one year or more, or for such other period as specified in the permit.

(iii) He determines that any condition imposed under subsection (c)(6) has not been or is not being met.

(e) Indirect source operating permits. (e)(1) No person shall operate or cause the operation of a new or modified indirect source without first obtaining an indirect source operating permit from the Commissioner in accordance with the requirements of this section.

(e)(2) No indirect source operating permit shall be required under subsection (e)(1) unless the source was required to obtain an indirect source construction permit under subsection (a).

(e)(3) No separate application shall be required under subsection (e) for those sources which have been granted an indirect source construction permit.

(e)(4) Prior to issuance of an indirect source operating permit, the Commissioner may require the owner or operator of a new or modified indirect source to provide such additional information as the Commissioner shall have requested either before or at the time of the issuance of the construction permit and has not already been included in the application for a construction permit.

(e)(5) In circumstances where he deems it appropriate, the Commissioner may issue a temporary permit to commence operations for a period not to exceed sixty (60) days. For good cause shown, the period may be extended by the Commissioner for any additional period required. Prior to the expiration of the period covered by the temporary permit, the Commissioner shall notify the owner or operator in writing of his approval or denial of the indirect source operating permit and the reasons therefor.

(e)(6) Indirect source operating permits required by subsection (e)(1), shall be issued or renewed for the expected life of the indirect source[, but not to exceed ten (10) years,] unless the Commissioner shall determine that a shorter period is appropriate under the circumstances of operation of any particular indirect source.

(e)(7) Application for the renewal of an indirect source operating permit shall be made at least 120 days prior to the expiration of the existing operating permit.

(e)(8) The Commissioner may impose as conditions on any indirect source operating permit only those conditions which were explicitly stated as conditions at the time the indirect source construction permit was issued.

(f) Standards for granting, renewing and reissuing indirect source operating permits. (f)(1) The commissioner shall grant an indirect source operating permit if he determines that:

(i) The indirect source has been granted an indirect source construction permit;

(ii) The indirect source has been constructed in accordance with the requirements, standards, and conditions set forth in the construction permit.

(f)(2) The Commissioner shall renew an indirect source operating permit if he determines that the indirect source has been operated in accordance with the requirements, standards, and conditions set forth in the operating permit.

(f)(3) In the event of a revocation or modification of an indirect source operating permit pursuant to subsection (h), the indirect source operating permit shall be reinstated upon a satisfactory showing to the Commissioner by the owner or operator that the failure or failures specified in the revocation or modification have been corrected.

(g) Transfer of indirect source operating permits. The holder of an indirect source operating permit may not transfer it without prior written notification to the Commissioner. Each new owner or operator or holder of the indirect source permit shall be responsible for complying with all applicable regulations and with the conditions of the permit.

(h) Revocation or modification of indirect source operating permits. The Commissioner may revoke or modify an existing indirect source operating permit for failure to comply with any conditions imposed in the operating permit.

(i) Notice of approval, denial, revocation or modification of indirect source construction permits and operating permits. (i)(1) Notice of denial, revocation or modification of any indirect source construction permit or of any indirect source operating permit shall set forth the reasons for the action taken and such denial, revocation or modification shall take final effect thirty (30) days after the date of service of the notice, unless a hearing is requested prior to the expiration of the thirty (30) day period.

(i)(2) Any party aggrieved by the approval, denial, revocation or modification of a construction or operating permit may obtain an adjudicative hearing thereon by filing a written answer and request for a hearing in accordance with Section 22a-8-2 of the Rules of Practice of the Department within thirty (30) days of the date of service of the notice. Filing of the answer and request for the hearing shall postpone the effective date of the approval, denial, revocation or modification until the conclusion of the hearing and issuance of the final decision of the Commissioner.

(i)(3) The revocation or modification of an indirect source operating permit pursuant to subsection (h) shall not be effective if the failure so to comply is remedied to the satisfaction of the Commissioner within thirty (30) days after service of the notice of revocation or modification.

(j) Public information and hearing procedures. (1) In all cases where there is a requirement of legal notice the commissioner shall cause the applicant for an indirect source permit to publish at his own expense all notices of hearings and other notices required by law.

(2) The commissioner shall inform the public of: (i) All indirect source permit applications received; (ii) all pending operating permits for indirect sources subject to the requirements of subsection (e)(1); (iii) all decisions approving, denying, revoking, or modifying any indirect source permit.

(3) While a decision is pending on an indirect source permit application of an operating permit for sources subject to the provisions of section (e)(1) any person may file a written comment or may file a written objection setting forthe the basis of the objection in detail and opposing the approval of the permit in its entirety or requesting that specific conditions be attached to it. Objection may be accompanied by a request for hearing.

(4) A public hearing on any permit application may be held by the commissioner: (i) Pursuant to a request for a hearing according to subsection (j)(3);

(ii) Whenever it is required by these regulations or by any applicable state or federal law;

(iii) At the discretion of the commissioner; or

(iv) Upon the request of any municipality. Following the close of the hearing, the commissioner shall make a decision based on all available evidence, including the record of the hearing and the recommendation of the hearing examiner, as to whether to approve or deny the indirect source permit. Notice of such decision shall be published according to subsection (j)(2).

(k) Signature. No indirect source permit issued under this section shall be effective until the applicant or his duly authorized representative shall have signed the permit, which signature shall constitute an agreement to abide by any terms and conditions therein.

(L) Local and regional participation in indirect source review. (1) Upon the request of the governing body of any municipality or other political subdivision, the commissioner may designate the municipal planning and zoning agency, the regional planning agency, or any other responsible municipal or regional agency or official as the designee of the municipality for the purpose of making comments and recommendations on applications for indirect source construction permits.

(2) The commissioner may publish and revise, from time to time, guidelines which shall assist the designated agencies in assessing the impact of any proposed indirect source on the development or resource allocation goals of the municipality or region.

(3) In addition to the other evaluations made pursuant to this section, the commissioner may evaluate the effect of the proposed construction or modification upon any plan for development or plan for resource allocation proposed by the municipality or region.

(4) The commissioner shall submit a copy of the application for an indirect source construction permit along with his evaluation and analysis, to the designated agency of any affected municipality for its review. Any designated agency wishing to make comments or recommendations with regard to a pending application must respond within thirty (30) days following its receipt of the application from the commissioner.

(5) Upon request of any municipality which has a designated agency under the provisions of subsection (L)(1), the commissioner may assist the municipality in formulating a plan for development or a plan for air resource allocation for the purpose of allowing the municipality and region to maximize the benefits of its utilization of the air resource within the limits imposed by air quality considerations.

(6) The commissioner may establish an indirect source advisory committee composed of municipal and regional officials to advise the commissioner on procedures concerning the evaluation of indirect source construction permits and indirect source permits to operate and to assist the commissioner in fostering increased municipal and regional cooperation in attaining and maintaining applicable ambient air quality standards.

APPENDIX A.2: Connecticut Application for an Indirect Source Construction Permit for Highways

A.P. FORM I.S.A.-8-1/28/76

HIGHWAY PROJECTS ONLY

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
AIR COMPLIANCE UNIT

APPLICATION FOR AN INDIRECT SOURCE CONSTRUCTION PERMIT

SEND COMPLETED APPLICATION TO

Department of Environmental Protection
Air Compliance Indirect Source Group
State Office Building
165 Capitol Avenue
Hartford, Connecticut 06115

The application is divided into two parts:

PART I. Includes owner, prime contact, and agent information; a description of the proposed indirect source; a description and identification of the impacted transportation network; identification and justification of traffic modeling; and other information.

PART II. Includes the queuing analysis and additional information.

PART I must be reviewed and approved by the DEP prior to the submission of PART II. The DEP will not consider an application for an Indirect Source Construction Permit officially "received" until all required information has been filed. If a particular part of a requirement is not applicable and therefore cannot be fulfilled, indicate so by writing "N/A". The Construction Permit will be issued subject to operating the facility in compliance with the design and operation described in this application. Any significant alterations to the design or operational features of a proposed indirect source which are made during the permit review period must be reported to the DEP. Submit the application in quadruplicate.

Application is hereby made for an Indirect Source Construction Permit pursuant to Section 19-508-100 of the Regulations for the Abatement of Air Pollution of the Regulations of Connecticut State Agencies.

A.P. FORM I.S.A.-8-1/28/76

PART I OF THE APPLICATION

A. OWNER AND PRIME CONTACT INFORMATION

1. NAME OF OWNER: ____________________ ____________

2. ADDRESS: NO.____ STREET____________________
CITY______________ STATE________ ZIP______

3. NAME OF PRIME CONTACT: (Designate an individual to work with the DEP who has the authority to speak for and make commitments on behalf of the applicant.)

4. TITLE:____________________ PHONE: (   )________

5. FIRM:____________________

6. ADDRESS: NO.____ STREET____________________
CITY______________ STATE______ ZIP______

B. AGENT INFORMATION

(Complete this section only if the applicant is someone other than the owner; e.g., consultant, attorney, developer, etc.)

1. NAME:____________________

2. TITLE:____________________ PHONE: (   )________

3. FIRM:____________________

4. ADDRESS: NO.____ STREET____________________
CITY______________ STATE________ ZIP____

C. INDIRECT SOURCE DESCRIPTION

1. TYPE - Specify whether the proposed project is:

a. ☐ new highway; or
b. ☐ a modification to an existing highway.

2. IDENTIFICATION:

a. Name of Highway:____________________
b. Route Number:____________________
c. Project Number:____________________

3. **LOCATIONAL DESCRIPTION:**

   a. Dominant Direction: ______________________ (e.g., east-west, northeast-southwest, etc.)

   b. FROM:
      i. CITY ______________________
      ii. INTERSECTION ______________________

   c. TO:
      i. CITY ______________________
      ii. INTERSECTION ______________________

4. **SIZE:**

   a. DDHV: ______________________

   b. Number of Lanes (One Direction):
      i. Maximum: ______________________
      ii. Minimum: ______________________

   c. Length (miles): ______________________

5. **ESTIMATED DATE OF COMPLETION:** ______________________

D. **DESCRIPTION OF TRAFFIC DISTRIBUTION METHODOLOGY**

Submit a description of the methodologies used to determine:

1. The origin of trips to the proposed highway (e.g., gravity model, etc.); and
2. The assignment of these trips to specific roadways (e.g., minimum travel time, etc.).

(Items 1 and 2 above should be labeled Attachments D-1 and D-2, respectively.)

E. **IDENTIFICATION OF THE TRANSPORTATION NETWORK**

1. Submit a Transportation Network Map(s), drawn to scale, of the transportation network which will be impacted by the proposed highway. (Label Attachment E-1 or, if more than one map is submitted, Attachments E-1a, E-1b, E-1c....) Include on the map(s) the following:

   a. All existing and planned roads for the distance along which the traffic from the proposed highway or modification will contribute the equivalent of at least ten percent (10%) of the ETC+1 (No-Build) peak hourly traffic volume on at least one directional link approaching an intersection;
   b. All existing and planned roadways and intersections which will intersect or otherwise interface with the proposed highway; and
   c. The proposed highway project.

---

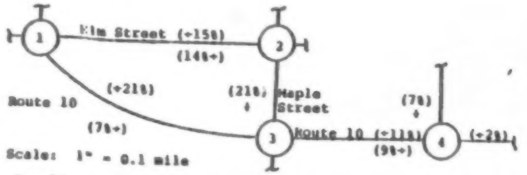
2. A Site Map(s), drawn to scale, is required. (Label Attachment E-2 or, if more than one map is submitted, Attachment E-2a, E-2b, E-2c,....) Include on the map(s) the following:

   a. The proposed highway;
   b. The existing use of any properties abutting the proposed highway; and
   c. Any exit from or entrance to the proposed highway from any properties required under item b above.

NOTE: Items b and c may be omitted *if* the proposed highway is a limited access highway, although the exits and entrances should still be indicated.

3. On the Transportation Network Map(s) and Site Map(s), assign each required intersection or other point of possible congestion and each necessary dummy intersection (i.e., intersections shown on the map which do not have any approach directional link described in Section E-1a, but are necessary to provide approach link designations for significantly impacted intersections and to ensure that the traffic network was defined correctly) a unique consecutive number beginning with "1". Indicate the street names and route numbers, if any; also, after completing Table I, indicate the actual resultant peak hourly traffic percent increase (see E-1a) on each approach directional link. An example of a section of a transportation network follows:

EXAMPLE E-3:



Scale: 1" = 0.1 mile

4. Provide a list of the alterations to the existing transportation network (e.g., road widening, changes in signalization, etc.) that will be completed within one year after the opening of the proposed highway. (Label Attachment E-4.)

5. Provide a list of each roadway directional link which is shown on the Transportation Network Map(s) and Site Map(s) in the format shown in the example below. (Label Attachment E-5.) Indicate by an asterisk any directional link where the traffic flow is one-way away from the intersection. Indicate by a double asterisk any dummy intersections.

EXAMPLE E-5: (The list should be prepared in the following format which is based on Example E-3 above.)

INTERSECTION NUMBER	INTERSECTION LOCATION	ASSOCIATED DIRECTIONAL LINKS
1	Elm & Route 10	2.01, 3.01
2	Elm & Maple Street	1.02, 3.02*
3	Maple Street & Rt. 10	1.03, 2.03, 4.03
4**	(Dummy Intersection)	N/A

NOTE:

(i) 1.02 represents the directional link along Elm Street going from Intersection 1 to Intersection 2.
(ii) 2.01 represents the directional link along Elm Street going from Intersection 2 to Intersection 1.

6. Describe the availability and type of public transportation existing or projected to serve the proposed highway. (Label Attachment E-6.)

F. IDENTIFICATION OF AREAS TO BE MODELED IN PART II

1. Complete Table II, attached, for all intersections described in Section E-1a.
2. The applicant should indicate all points of possible congestion (e.g., intersections, toll booths, etc.) to be modeled using the following guidelines:
    a. All intersections described in Section E-1a for which at least one approach link is required as indicated by the screening charts in Table II attached;
    b. All exits and entrances to the proposed highway and all points of possible congestion on the proposed highway (e.g., tunnels, toll booths, etc.); and
    c. All intersections requested by the DEP after reviewing the above.
3. List all those intersections selected using the above guidelines in the same format as shown in Example E-5. (Label Attachment F-3.) It should be noted that if any approach link to an intersection requires modeling, every approach link to that intersection requires modeling in PART II of this application.

G. IDENTIFICATION OF TIME PERIODS TO BE MODELED IN PART II

1. Complete Table III using the following guidelines:
    a. For all points of possible congestion on the proposed highway select the peak hour and peak eight hour time periods associated with the highest total traffic volumes traveling through such areas.
    b. For all intersections described in Section F-2a above, and exits and entrances, select the peak hour and the peak eight hour time periods associated with the highest total traffic volumes traveling through the intersection; provided that at least one approach link will carry traffic contributed by the highway equivalent to at least ten percent (10%) of the ETC+1 (No-Build) peak hourly traffic volumes on such links during the chosen time periods.

H. TRAFFIC QUEUING MODEL

Identify which "Traffic Queuing Model" will be used in the analysis required in PART II, Section A, of the application. If this model is not one of the previously accepted methods, a description, documentation and verification of the model must be submitted. (Label Attachment H.)

I. ADDITIONAL INFORMATION

Additional data may be required concerning one or more of the following:

1. Transportation alternatives;
2. Air quality monitoring; and
3. Traffic monitoring

The Commissioner retains the discretion to identify and require analyses of elements of the transportation network which he has reason to believe may cause or contribute to a violation of any National Ambient Air Quality Standard. In addition, upon request and a satisfactory showing by the applicant, the Commissioner may modify any item in the application which he determines is not necessary to fulfill the requirements of Section 19-508-100 of the Administrative Regulations for the Abatement of Air Pollution.

I certify that all statements made in connection with PART I of this application and in the attachments thereto are true and complete. (The signator is subject to provisions of the Connecticut General Statutes regarding false and misleading statements.)

SIGNED	TITLE	DATE

FOR OFFICE USE ONLY

AQCR_____ COUNTY _________ TOWN______________ GRID______ STATE_____
SIC______ ZONE____X____.__ Y_____.___ DATE REC'D. ____/_____/____

TABLE I:

DETERMINATION OF TRANSPORTATION NETWORK

I.N.[1]	L.N.[2]	PHT (NO-BUILD)[3]	PHT (BUILD)[4]	PHT % INCREASE[5]

---

[1] I.N.: Intersection Number

[2] L.N.: Approach Link Number

[3] PHT (No-Build): ETC + 1 (No-Build) Peak Hourly Traffic

[4] PHT (Build): ETC + 1 (Build) Peak Hourly Traffic

[5] PHT % Increase: $\frac{[PHT(Build) - PHT(No\text{-}Build)]}{PHT(No\text{-}Build)} \times 100$

PAGE____OF____

TABLE II

IDENTIFICATION OF SECTION E-1a AREAS TO BE MODELED IN PART II

INTERSECTION NUMBER:________ INTERSECTING STREETS:____________________

DIREC-TIONAL LINK #	TRAFFIC CONTROL TYPE	NUMBER OF APPROACH LANES	PHT ETC + 1 (BUILD)		PSHT ETC + 1 (BUILD)		CYCLE LENGTH	RED TIME +3 SEC.	RED/CYCLE RATIO	CHART NUMBER USED	QUEUE FACTOR		QUEUING ANALYSIS	
			TIME PERIOD	TRAFFIC VOLUME	TIME PERIOD	TRAFFIC VOLUME					PHT	PSHT	PHT	PSHT

NOTE: The attached screening charts may be used to determine which areas described in Section E-1a are required to be analyzed in detail in PART II of the application. The following guidelines should be observed in applying this screening method:

a. Apply the existing signalization;
b. Use the total traffic volumes expected one year after the proposed highway is opened;
c. If any approach link to an intersection requires a review, all approaches to that intersection require a review;
d. Refer to "Preliminary Screening of Approaches with Exclusive Turn Channels", attached, if any approach link has an exclusive turn channel; and
e. Intersections which have an approach link with at least four (4) lanes may not be screened (i.e., a queuing analysis must be performed for such intersections in PART II).

PAGE ______ OF ________

TABLE III

IDENTIFICATION OF PEAK HOUR AND PEAK EIGHT HOUR TIME PERIODS

INTERSECTION NUMBER	ONE HOUR TIME PERIOD (HOUR OF THE DAY)	EIGHT HOUR TIME PERIOD (HOURS OF THE DAY)

PART II OF THE APPLICATION

A. QUEUING ANALYSIS - Table IV

1. A queuing analysis is required for the PHT and P8HT periods for the existing and all required projected traffic situations; i.e., build and no-build for estimated time of completion (ETC) + one (1) year, ETC + Five (5) years, and ETC + ten (10) years. (Label Attachment A.)

2. Sketch each intersection in the space provided in Table IV. Indicate link directional flow using arrows. Submit for each approach link the required information for:

   (i) the presently existing transportation network; i.e., Existing;
   (ii) the transportation network as projected for one, five, and ten years after the proposed highway begins operation; i.e., ETC+1(Build), ETC+5(Build), and ETC+10 (Build); and
   (iii) assuming the proposed highway is not built, the transportation network as projected for one, five, and ten years after the source was to be in operation; i.e., ETC+1(No-Build), ETC+5(No-Build), and ETC+10(No-Build).

3. Calculate the average number of idling vehicles per lane (i.e., queue length) which will be waiting at the traffic control on each approach link. In the case of signalized intersections, the queue lengths should be the average during the queuing time.

B. ADDITIONAL DATA MAY BE REQUIRED CONCERNING ANY OF THE FOLLOWING:

1. Transportation alternatives;
2. Air quality monitoring; and
3. Traffic monitoring.

The Commissioner will notify you in writing of any such additional requirement. If such additional information is required, an application will not be considered "received" until all required information is on file with the DEP.

I certify that all statements made in connection with PART II of this application and in the attachments thereto are true and complete. (The signator is subject to provisions of the Connecticut General Statutes regarding false and misleading statements.)

______________________ SIGNED ______________________ TITLE ____________ DATE

PAGE_______OF_______

TABLE IV

INTERSECTION NUMBER_______ DIRECTIONAL LINK NUMBER_____.___

NAMES OF INTERSECTING STREETS________________________________

NOTE: Read instructions carefully before completing table. Refer to the attached glossary which defines all terms in the table.

INDICATE TIME PERIOD BEING ANALYZED: PHT ☐ PSHT ☐

AG

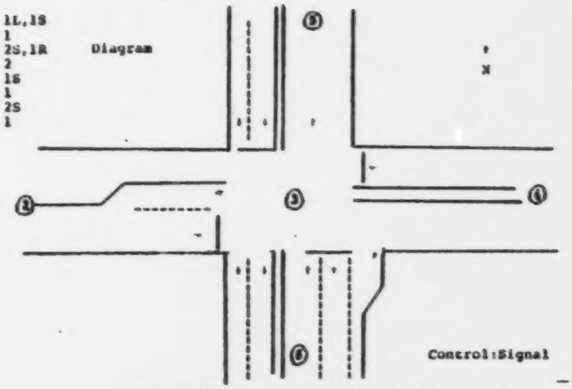
N

NTH:

ME PERIOD	# OF DEPART LANES	# OF APPROACH LANES		Q	% G TIME	APPROACH VOLUME T.P.	ROAD SPEED	RED CYCLE	RED	ROAD CAPACITY	D/C	ADT		DEPART VOLUME T.P.
												APPR.	DEP.	
UR( ):		S												
Y:		L												
AR:		R												
UR( ):		S												
Y:		L												
AR:		R												
OUR( ):		S												
AY:		L												
EAR:		R												
OUR( ):		S												
AY:		L												
EAR:		R												
OUR( ):		S												
AY:		L												
EAR:		R												
OUR( ):		S												
AY:		L												
EAR:		R												
OUR( ):		S												
AY:		L												
EAR:		R												

GLOSSARY

2.03 1L,1S
3.02 1
6.03 2S,1R
3.06 2
4.03 1S
3.04 1
5.03 2S
3.05 1



ADT:	Average daily traffic, reported for both the approaching (APPR.) and departing (DEP.) directional links.
# of Approach Lanes:	For the directional link being analyzed, the number of lanes approaching the intersection. In the above sample diagram, directional link 6.03 has two (2) straight-thru lanes and one (1) right turn approach lane.
S:	Straight thru lane
L:	Left turn only lane
R:	Right turn only lane
Approach Volume: T.P.	The traffic volume on the approaching lane(s) per time period.
Control:	Type of traffic control at the intersection (e.g., signal, stop sign, etc.)
Day:	Specify the day on which the analysis is being performed by indicating holiday, weekend or weekday.
# of Depart Lanes:	The number of lanes countercurrent to the directional link being analyzed. For directional link 6.03 the departing link is designated 3.02 and has two (2) lanes.
Depart Volume: T.P.	The traffic volume on the departing directional link per time period.
Directional Link Number:	The directional link number classifies the direction in which the traffic is moving on a road segment (e.g., traffic moving from intersection two (2) toward intersection three (3), in the figure above, would be classified as traveling on directional link 2.03).
D/C:	The demand-capacity ratio for the approaching directional link.
Intersection Number:	The potential point of congestion being analyzed (assigned a unique consecutive number by the applicant according to the instructions for the Transportation Network Map).

PHT Existing:	Peak hour traffic which presently exists on the roadway.
PHT ETC + 1 (Build):	Peak hour traffic projected for the roadway one (1) year after the estimated time of completion (ETC+1) of the proposed highway, assuming the proposed highway is built.
PHT ETC + 5 (Build):	Peak hour traffic projected for the roadway five (5) years after the estimated time of completion (ETC+5) of the proposed highway, assuming the proposed highway is built.
PHT ETC + 10 (Build):	Peak hour traffic projected for the roadway ten (10) years after the estimated time of completion (ETC+10) of the proposed highway, assuming the proposed highway is built.
PHT ETC + 1 (No-Build):	Peak hour traffic projected for the roadway one (1) year after the estimated time of completion (ETC+1) of the proposed highway, assuming the proposed highway will not be built.
PHT ETC + 5 (No-Build):	Peak hour traffic projected for the roadway five (5) years after the estimated time of completion (ETC+5) of the proposed highway, assuming the proposed highway will not be built.
PHT ETC + 10 (No-Build):	Peak hour traffic projected for the roadway ten (10) years after the estimated time of completion (ETC+10) of the proposed highway, assuming the proposed highway will not be built.
P8HT Existing:	Peak eight hour traffic which presently exists on the roadway.
P8HT ETC + 1 (Build):	Peak eight hour traffic projected for the roadway one (1) year after the estimated time of completion (ETC+1) of the proposed highway, assuming the proposed highway is built.
P8HT ETC + 5 (Build):	Peak eight hour traffic projected for the highway five (5) years after the estimated time of completion (ETC+5) of the proposed highway, assuming the proposed highway is built.
P8HT + 10 (Build):	Peak eight hour traffic projected for the roadway ten (10) years after the estimated time of completion (ETC+10) of the proposed highway, assuming the proposed highway is built.
P8HT ETC + 1 (No-Build):	Peak eight hour traffic projected for the highway one (1) year after the estimated time of completion (ETC+1) of the proposed highway, assuming the proposed highway will not be built.

P8HT ETC + 5 (No-Build):	Peak eight hour traffic projected for the highway five (5) years after the estimated time of completion (ETC+5) of the proposed highway, assuming the proposed highway will not be built.
P8HT ETC + 10 (No-Build):	Peak eight hour traffic projected for the highway ten (10) years after the estimated time of completion (ETC+10) of the proposed highway, assuming the proposed highway will not be built.
Q:	The total vehicle-seconds of delay per lane experienced by cars idling at a point of congestion, divided by the total time (in seconds) during which the idling occurs.
%Q Time:	The percent of the time period that queuing exists on the lane(s).
Red/Cycle:	The red light time divided by the total cycle time.
Red(red time):	The red light time (sec.)
Road Speed:	The posted free flow road speed (MPH).
Time Period:	Identifies the one or the eight hour period, and the year being analysed.

APPENDIX A.3: Carbon Monoxide Impact Analysis--Preliminary Evaluation

DATE: ____________________

APPLICATION #: ____________________

PRELIMINARY EVALUATION
A CARBON MONOXIDE IMPACT ANALYSIS
FOR

____

IN

____

PREPARE: FOR: Robert A. Rubino
Assistant Director
Air Compliance Unit

Brian J. Kenny
Principal Air Pollution
Control Engineer

SUMMARY: ______________________________ intersections were evaluated for 19____ conditions. For this future (build) case, the expected carbon monoxide levels have been calculated and compared to the eight hour National Ambient Air Quality Standard of 9 ppm and the one hour standard of 35 ppm.

____________________ violation(s) (is) (are) are predicted at any of the ______________ intersections; it is recommended that a permit to construct ________________ issued for this facility.

BY ________________________

____

/14/77 REV.)

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GLOSSARY

INTRODUCTION

The Findings and Analyses which follow are designated as a "Preliminary Evaluation" of the impact on one aspect of air quality of the

______________________ ____________________ proposed to

be built in ______________ _____, Connecticut.

Copies of this "Preliminary Evaluation" prepared by the staff of the Air Compliance Unit in the Department of Environmental Protection, and copies of the "Application for an Indirect Source Construction Permit" submitted by the owners of the proposed ____________________ are required to be made available for public review and comment for a period of not less than 30 days. Any interested person may submit comments or request that a hearing be held during this 30 day period.

Comments and any request for a hearing should be addressed to:

Director of Air Compliance
State Office Building, Rm. 144
165 Capitol Avenue
Hartford, Connecticut 06115

Comments will be fully considered and made a part of the review file. Requests for hearing will be transmitted to the Commissioner who may grant a hearing. Any request for hearing should describe in detail the issues in regard to which the hearing is requested.

DEPARTMENT FINDINGS FOR THE ________________________

1. The Indirect Source Regulation (Section 19-508-100 of the Regulations of Connecticut State Agencies for the Abatement of Air Pollution) requires that an owner or operator of any indirect source which may cause to be emitted 50 tons or more of pollutants annually shall, before construction begins, apply to the Commissioner of Environmental Protection for a Permit to Construct. The regulation does not apply to indirect sources which began construction before October 1, 1974. The Department of Environmental Protection (DEP) has issued an "Indirect Source Permit Limit Criteria" list to assist the owners and operators of proposed indirect sources in determining whether their facility emits sufficient pollutants to be subject to review under the Regulation. Under the category "____________

   __________________", which includes __________________

   __________________, the permit limit criteria list says

   that any such facility with a ________________________

   of ____________________ or more is subject to the review.

   ____________________________________(applicant), (i)

   proposes to provide ______________________, and (ii) was not under construction on or before October 1, 1974.

   FINDING: The applicant is required to apply for and obtain an Indirect Source Permit to Construct.

2. The Regulations establishes four standards which the applicant must meet in order to obtain a Permit to Construct (see Section 19-508-100 (b)(1)):

   (i) The new or modified indirect source for which a permit is required will be constructed and will operate in accordance with all applicable statutes or regulations administered by the Commissioner.

   FINDING: If built and operated as described in the permit application, the indirect source ______________ be in accord with all applicable statutes and regulations.

   (ii) The new or modified indirect source will operate without preventing or interfering, directly or indirectly, with the attainment or maintenance of any applicable ambient air quality standard.

It is chiefly with regard to this standard that the review process is conducted. The only "applicable" National Ambient Air Quality Standards (NAAQS) are those for carbon monoxide (CO), analysis for other motor vehicle pollutants is at the present beyond the technical capacities of the applicant, of the federal Environmental Protection Agency and the DEP. There are two NAAQS for CO:

(1) The one hour standard - 35 parts per million; and

(2) the eight hour standard - 9 parts per million

Neither standard is to be exceeded more than once annually at any location in the state.

FINDING: In 19____, ____________________________ violation(s)

of the NAAQS for CO are predicted at __________________________

of the __________________________________ intersections analyzed in the permit application.

(iii) The new or modified indirect source will contain such instrumentation or facilities for monitoring, recording, sampling and testing of air quality and related factors as the Commissioner may reasonably require.

FINDING: Facility testing is not recommended at this time.

(iv) The new or modified source will not result, either directly or indirectly, in deterioration of air quality in 1975 or later in any region or subregion of the state.

FINDING: The state of Connecticut has not adopted regulations concerning the prevention of "significant deterioration" and the federal regulations now in effect do not address deterioration resulting from carbon monoxide emissions.

3. PRELIMINARY RECOMMENDATION

The applicant __________________________________ be issued an Indirect Source Permit to Construct subject to the following conditions:

Failure to comply with any or all of the above conditions within the time period specified shall be grounds for the immediate revocation of any Permit to Construct or Operate then in effect.

SECTION A: DESCRIPTION OF FACILITY

The proposed ______________________________ encompasses

approximately ______________________________ within the (city)(town) of

____________________ Connecticut. It is located ______________

____.

For the purpose of this review, the facility is classified as a ________

______________________________________ comprising:

____

____

____

____

____

____

____

The projected schedule of operation for the ____________________

__________________________ is:

____

____

____

The above information was extracted from the main body of the application.

SECTION B: THE TRAFFIC NETWORK AND QUEUING ANALYSIS

The Department of Environmental Protection (DEP) requires that an Indirect Source Permit applicant submit all the traffic information necessary to evaluate the impact of the source-generated traffic (i.e., vehicles attracted to the facility) on ambient air carbon monoxide (CO) levels. The required data may be divided into three main sections as follows:

1. Distribution of the source-generated traffic on the road network,
2. Identification of areas to be modeled, and the
3. Queuing Model Analysis.

Each of these sections will be considered separately in the text that follows.

Section B-1: Defining the Road Network

The impact of a proposed indirect source on the local CO levels depends primarily on the manner in which the source generated traffic circulates over the roadway network. The initial step in any evaluation is to predict the percentage of the facility traffic coming from each contributing locality (town, city, or residential area). To make this prediction the

____ used the methodology which is described in Attachment D-1 of the application. Relevant sections of this description are presented in Appendix I.

These projections are used to identify the roadway network which carries 25% or more of the peak hourly source generated traffic on any approach directional link. To determine this roadway network, the applicant assumed that the indirect source would generate traffic according to the schedule indicated on Table I of the application. The traffic distribution is included in the application as Attachment E-1.

The source generated traffic is assigned to individual roads by standard traffic engineering procedures which have been approved by the Conn. Department of Transportation. A discussion of the assignment methodology can be found in the application as Attachment D-2. Traffic entering and departing the site is expected to utilize the network as shown in Attachment E-1 and the traffic within the site is expected to follow the pattern shown in Attachment E-2.

The actual transportation network is described below:

____

____

____

____

____

After the traffic is assigned to specific roadways, those intersections which will carry a significant portion of the source generated traffic must be determined. To this end the applicant was required to submit:

1. A map (to scale) of the existing traffic network showing all presently existing roads and intersections which will carry twenty-five percent (25%) or more of the peak hourly source-generated traffic; i.e. 25% of the greatest number of vehicles entering or leaving the site during a one (1) hour period.

2. The average daily traffic (ADT) for all state roads, and any other roads within the impacted network where ADT's have been taken through TOPICS or other traffic studies.

3. Road capacity, posted speed limit, peak hourly traffic, etc. for all roads defined above.

These requirements were successfully completed for the ________________ ____________________________ in:

________________________ Traffic Distribution Maps, E-1a, E-1b, and the Intersection Information Tables.

A further requirement of the application was a list of alterations to the traffic network (road widening, changes in signalization, etc.) that will be completed within one year after the opening of the facility. A summary of the road network improvements (proposed by the applicant) associated with the facility is indicated in Attachment E-4 of the application.

Section B-2: Identification of Areas to be Modeled

A carbon monoxide impact due to the source generated traffic can occur not only on the site, but also along other points on the road network. Therefore, the DEP requires the applicant to determine where, within the network described in B-1, above, (Section E in the application) the source generated traffic will have a significant impact. The following guidelines were used by the applicant to determine the areas to be modeled:

1. All intersections described in Section E-1a where the Maximum Daily Source Generated Traffic (MDSGT) will be equivalent to ten percent (10%) or more of the future ADT (No-Build) on at least one approach link as indicated in Table II of the application;

2. All exits from the entrances to the facility and all on-site points of possible congestion (e.g., signals, stop signs, etc.); and

3. All intersections requested by the DEP after reviewing the above.

Using these guidelines the following list of intersections were selected for a detailed queuing analysis.

The applicant is required to select the one hour period and the eight hour period for which an in-depth queuing analysis will be calculated for the above intersections based on the following guidelines:

1. For all on-site points of possible congestion, select the peak one hour and peak eight hour time periods associated with the highest total traffic volume traveling through such areas.

2. For all off-site points of possible congestion and exits and entrances, select the peak one hour and peak eight hour time periods associated with the highest total traffic volumes traveling through the intersection; provided that at least one approach link which will carry twenty-five percent (25%) of the Peak Hourly Source-Generated Traffic, as defined above, and will carry traffic generated by the facility equivalent to at least ten percent (10%) of the future (NO-BUILD) volumes on such links during the chosen time periods.

The applicant selected the following peak hour traffic (PHT) and peak eight hour traffic (P8HT) time periods for the intersections to be analyzed.

INTERSECTION	WORST CASE ANALYSIS DAY	PHT	P8HT

Section B-3: Queuing Model Analysis

At each of the identified points of possible congestion the applicant is required to calculate the average number of idling vehicles per lane which will theoretically be waiting at the traffic control during the time period being analyzed. This is called the "queue length" and a "queuing model" is used to calculate the expected values. The queues are calculated for the following three cases.

1. the presently existing transportation network, i.e., Existing;
2. the transportation network as projected for the year after the indirect source begins operation; i.e., Future (Build); and
3. assuming the indirect source is not built, the transportation network as projected for one year after the source was to be in operation; i.e., Future (No-Build).

It is assumed that all of the traffic network alterations listed in Section B-2 will be completed. This allows the DEP to compare the existing future (Build) and future (No-Build) ambient air carbon monoxide levels.

Since there are both one hour and eight hour standards for carbon monoxide, the peak one hour and eight hour traffic conditions on which the facility impacts are modeled.

The particular queuing model used in this application is described in Attachment H of the application. This model was reviewed and approved by the Connecticut Department of Transportation.

SECTION C: AIR QUALITY ANALYSIS

Section C-1: The CO Model

The data submitted by the applicant are used by the DEP to calculate the expected worst case ambient air CO concentrations along the impacted network. The predictions of worst case ambient CO concentrations are based on the existing and both projected traffic situations (i.e., build and no-build) which will exist one year after the proposed indirect source is projected to commence operation. Furthermore, both the peak one hour and the peak eight hour traffic situations are analyzed so that the resulting worst case ambient CO concentrations may be compared to the one hour and eight hour National Ambient Air Quality Standards for CO.

CO is classified as a "local" pollutant; i.e., CO concentrations decrease rapidly as the wind carries the CO away from its source. The DEP performed studies which have confirmed this behavior. Therefore, since the automobile is the primary generator of CO from an indirect source, it is clear that the maximum ambient CO concentrations are located in close proximity to roadways. In addition, monitoring studies performed by the DEP established that queues of idling cars create much higher downwind CO concentrations than moving vehicles. Thus, the Indirect Source Review is designed to estimate the maximum ambient CO concentrations at points of possible congestion where significant queuing will most likely occur. Points of possible congestion include signalized intersections, stop signs, on- and off-ramps to limited access highways, etc. Conversely, stretches of roadway between intersections, and parking areas, do not usually create enough localized queuing to warrant an in-depth CO review.

The DEP analyzes the points of possible congestion for ambient CO concentrations by the means of a two-part modeling procedure developed by the DEP. One part of the procedure determines the CO contribution attributable to queued cars during the analysis period (one hour or eight hours). The second part predicts the CO contribution from traffic that is able to pass through the points of possible congestion without stopping (called "free flow"). These two distinct CO contributions are "time-weighted" (i.e., multiplied by the percentage of time each occurs during the time period analyzed) and then summed to determine the worst case ambient air CO concentration.

The CO concentration at a point of possible congestion (an intersection will be used as an example) is a result of the movement of vehicles approaching, waiting at, and departing from the intersection on each road. The modeling procedure predicts the CO concentration attributable to one approach to an intersection at a time. Such a method results in a slight underprediction of the CO since the queuing and free flow on the other approaches may contribute additional CO. However, since CO is a local pollutant (as explained above), the contributions from the other more distant approaches are relatively small. In addition, it should be noted that the departure link associated with the approach link is neglected in the CO analysis since the departure link includes only free flow traffic. As a result, and due to the substantial additional time requirements to collect, verify, and evaluate such relatively small CO contributions, each approach is analyzed as a separate entity. Meteorological conditions which give the maximum CO concentration at a distance of ten (10) meters from the nearest edge of each approach are used in the model. Specifically, a wind speed of eight (8) miles per hour is used since such a high wind speed gives high CO concentrations when queuing occurs. (Note that for links which handle only free flow traffic a wind speed of two (2) miles per hour was assumed in lieu of 8 miles per hour. Such a change was effected since the free flow CO model has a worst case wind speed of 2 miles per hour. Furthermore, the worst case wind angle of ten (10) degrees from parallel to the roadway was utilized.) An even higher wind speed was not used since the model is not verified for wind speeds greater than eight (8) miles per hour. In addition, a wind angle in reference to the approach is used which gives the maximum CO concentration. The wind angle depends on the queue length being analyzed; for the longer the queue length, the more nearly parallel to the roadway is the angle giving the maximum CO concentration. The analysis distance (ten meters) was selected because, during the development period of the program, such a distance was commonly used in roadway air pollution monitoring studies. More importantly, the accuracy of the DEP modeling procedure may be expected to decrease at distances less than ten (10) meters.

The predicted worst case ambient CO concentration is also dependent on which year is being analyzed; for the average automobile traveling on the traffic network will emit less CO in future years because of the Federal Motor Vehicle Emission Control Program (FMVECP). The DEP has used the best available information to generate the amount of CO emitted by the "average" automobile driven in Connecticut for each analysis year from 1974 to 1990.

Appendix II presents in greater detail the modeling procedure and the actual equations and methodologies used to calculate the worst case ambient air CO levels at points of possible congestion with the traffic network.

Section C-2: Discussion of Results

Ambient air carbon monoxide (CO) concentrations for the ________________ ________________ points of possible congestion listed in Section B-2 were predicted by the DEP. Each directional link was analyzed at the peak one (1) and eight (8) hour traffic conditions for the years 19____ and 19_______.

The concentrations are calculated for each approach directional link of each intersection reviewed. Directional links are represented in the appendix and the discussion below as XX.XX.

A directional link may best be defined in conjunction with sketch below:

Main, Maple, and South Streets are 2-way streets. The junction of Main and Maple is designated as Intersection 1 and the junction of Main and South Streets as Intersection 2. A roadway link may be defined as the segment of road between two (2) intersections. A directional link further classifies the segment as to the direction in which the traffic is moving. For example, the traffic on Main Street going from Maple to South Street would be designated as traveling directional link 1.02. Traffic from South to Maple Street would be on directional link 2.01. The second number given is always the intersection the traffic is approaching. Thus the concentration of CO calculated for approach directional link 1.02 is the CO associated with the free flow and queuing of traffic coming only from the direction of intersection 1 to intersection 2.

Examination of the existing 19____ traffic network established base line data, while the CO levels calculated for 19___ accounted for:

1. Traffic generated by the proposed facility

2. Traffic network alterations scheduled by the applicant

3. Normal traffic growth on the roadways

4. The expected decrease in the CO emissions of the "average Connecticut vehicle" as a results of the pollution devices on the newer segments of the vehicle population.

The computed values were then compared to the one (1) hour (35 ppm) and eight (8) hour (9 ppm) National Ambient Air Quality Standards for CO; neither standard was exceeded at any of the points analyzed in either 19___or 19___.

The predicted CO concentration for the 19_____ build case are summarized below:

INTERSECTION NAME	TIME PERIOD	DIRECTIONAL LINK NUMBER	CO (PPM)	
			1 Hr.	8 Hr.

At the following ____________________ intersections a violation of the eight hour CO standard is predicted for the 19_____ future (Build) case. Cases where the future (No-Build) concentrations are also above the standard have a (**) and cases where the future 19_____ (No-Build) concentrations are above the standard have a (!!). The location of these intersections relative to the proposed facility is shown in Figure I of the Appendix III.

INTERSECTION NAME	DIRECTIONAL LINK	PREDICTED 8 HOUR CO CONCENTRATION, PPM

Of the above directional links showing violations for the 19_____ future (Build) case, the following ________________ showed increased levels as compared to the 19_____ future (No-Build) case.

INTERSECTION NAME	DIRECTIONAL LINK	FUTURE CO CONCENTRATIONS	
		BUILD 19___	NO-BUILD 19___

Also, of the directional links listed as showing violations for the 19___ future (Build) case, the following ____________________________ intersections showed increased levels as compared to the existing levels.

INTERSECTION NAME	DIRECTIONAL LINK	CO CONCENTRATION	
		EXISTING 19___	BUILD 19___

There are no predicted violations of the one hour standard.

APPENDIX I

TRAFFIC DISTRIBUTION METHODOLOGY

GRAVITY MODEL

The percentage of the total ______________________ coming from a specific town was calculated from the following equation:

$$V = \frac{(P_i/D_i)\ (K_i)}{\sum_{i=1}^{N} (P_i/D_i)\ (K_i)} \times 100$$

where:

V = percentage of vehicles patronizing the ____________________ source from the locality in question

P_i = population of locality in question

D_i = "air" distance from the locality in question to the site, in miles

K_i = an adjustment factor to compensate for the proximity of a competing ____________________________ no direct route to the site, etc.

N = number of localities contributing vehicles to the proposed facility

APPENDIX II

THE CONNECTICUT INDIRECT SOURCE CARBON MONOXIDE PREDICTION MODEL

THE CONNECTICUT INDIRECT SOURCE CARBON MONOXIDE PREDICTION MODEL

The Connecticut review procedure for evaluating the impact of a new source on local carbon monoxide levels requires the applicant to submit information on the traffic conditions at each intersection in the impacted traffic network. This information is then used to predict the "worst case" expected carbon monoxide levels. The equation which is used to predict the carbon monoxide concentration is:

$$CO = (Q_q)(\Phi_R)(C_q) + (0.1726)(Q_f)(1-\Phi_R)(V)(E)(F) \qquad (1)$$

where:

CO = The carbon monoxide concentration in ppm.
Q_q = The idling car CO emission rate in grams per vehicle minutes. This rate changes with the analysis year as shown in Table II.
Φ_R = The ratio of the red light time to total cycle time. (A dimensionless term)
C_q = A unit idling car CO concentration which depends on the number of queued cars as shown on Table I. Units are ppm per emission rate in grams per vehicle minutes.
Q_f = The free flow CO emission factor in grams per mile. This factor also changes with the analysis year as shown in Table II.
V = The hourly traffic volume for the approach lanes in thousands of vehicles per hour per lane.
E = A unit free flow CO concentration. The units of this term are ppm per gram vehicles per meter second (See Table I).
F = The road speed correction factor which is dimensionless. Since the newer cars have characteristics different than earlier models, the method outlined in Table III must be used to accurately calculate this variable.
0.1726 = A conversion factor which has the units mile hours per thousand meter seconds.

Equation (1) is in the form

$$CO\ (total) = CO\ (idle) + CO\ (free\ flow), \qquad (2)$$

or the total carbon monoxide is the sum of the carbon monoxide concentrations from the idling car mode CO (idle) and the free flow mode CO (free flow).

The predicted ambient CO at a receptor caused by idling vehicles is given by:

$$\Psi = 1.26\,\bar{u} \sum_{i=1}^{n} \frac{Q_i}{S_i} \exp \frac{-\Delta_i^2 u^2}{110,000} \qquad (3)$$

where:

Ψ = predicted CO at a receptor, ppm
u = average wind speed, mph
i = particular, (ith), idling car
n = number of idling cars
Q_i = emission rate of the ith car, grams/minute
S_i = radius vector from the tail pipe of the ith car to the receptor, feet
Δi = difference between the average wind direction and the radius vector of the ith car, degrees

When the emission rate is constant, Q_i can be rewritten as Q_q and Equation (3) becomes:

$$\Psi = Q_q\,(1.26)\,u\,\Sigma i\,\frac{1}{S_i}\,\exp \frac{-\Delta_i^2 u^2}{110,000} \qquad (4)$$

or $\Psi = Q_q\,C_q$

When the vehicles are at idle for only a portion of a cycle or other time period, the CO concentration at a point due to the idling vehicle becomes

$$CO(Idle) = \Psi\Phi_R = \Phi_R\,Q_q\,C_q$$

which is the first term in equation (1).

In a similar manner, the second term in equation (1) is derived from the EPA HIWAY Model. Since the idle and free flow emissions change with the analysis year, both expressions are written in terms of unit emission rates to facilitate calculations for different analysis years. As a result of manpower and computer limitations many of the variables in equation 1 and the EPA HIWAY are considered constant. For example, the road is assumed to be straight, the width of each lane is assumed to be twelve feet, and the cars are assumed to queue so that there is a twenty foot spacing between tail pipes. Also, the review is designed to look at the worst receptor point. (i.e., that point ten meters from the road edge where the highest CO concentration is calculated). On the other hand, certain parameters are unique to the intersection. The number and types of lanes, the signal timing, the traffic volumes, and the queues resulting from the timing and volumes, are all variables. The philosophy of the review is that if, under those assumed and calculated conditions, and with a worst case meteorology of an eight mile per hour wind speed, there is no violation at the worst point, there will not be a violation anywhere in the vicinity of the intersection. Since it is more likely to find a violation where cars are queued for some period of time, it is further assumed that if there is no violation at the intersection or other area of queuing, there are no violations between these areas.

Conversely, if there is a violation at the worst receptor point, there is probably more than one receptor point where there is a violation. Again, because of computer and manpower limitations, no attempt is made to define the complete area(s) within which violations will be observed.

The values given in Tables I through III can be used for cases where the assumptions listed below are valid. The calculation made using these values gives the worst receptor value. In cases where the physical parameters differ significantly from those assumed in the generation of the tables, a more rigorous application of Equation (2) and the EPA HIWAY may be more accurate. However, a search for the Worst receptor value is a time consuming computer search and is beyond the scope of the preliminary review.

Before going through an example, there are several important assumptions and conditions which must be placed on the use of the values in these tables to predict CO levels. These are listed below:

1. The tables assume a wind speed of 8 mph except for cases for which only free flow exists (i.e., no queuing occurs). For such cases, a wind speed of 2 mph was used since it gives the worst case CO as calculated solely by the EPA HIWAY model.

2. The tables readjust the wind angle to include the worst case conditions. This depends on the number of cars queued (N). Note that for the cases for which no queuing occurs (i.e., N = 0) a wind angle of 10^o is used which gives the worst case CO as calculated by the EPA HIWAY model.

3. The tables predict for worst case conditions 10 meters (33 feet) from the edge of the nearest directional lane.

4. The tables only consider the directional link in determining concentration. In fact, the other links, and traffic moving in the other direction will add an incremental contribution to the predicted value. The amount of error involved, considering the cost, ruled out the more sophisticated approach.

5. The tables assume the tail pipes of all vehicles are located in the center of each lane.

6. The tables assume a twelve (12) foot lane width and a twenty (20) foot spacing between the tail pipes of successive idling cars.

7. The tables assume stability class C and a mixing height of 1000 feet for the free flow assessment.

The following information must be provided before an analysis can be performed.

1. The number of approach lanes
2. The queue length (N) in cars per lane
3. The red light to total cycle time ratio (ϕ_R)
4. The traffic volume per lane
5. The average road speed
6. Analysis year

Example - A road approach in the year 1975 has a signalized intersection with a 60 second cycle length. The road has two approach lanes with 30 seconds of red time during each traffic cycle. The peak eight hour traffic flow for those approach lanes is 1000 cars per hour. The average road speed during the peak eight hour time period is 30 miles per hour (mph). A traffic analysis indicates that a queue length of 4 cars per lane exists (i.e. N = 4) during the peak eight hour period. What is the maximum 8 hour CO concentration ten meters from the road edge?

Solution: 8 hour CO concentration CO (8 hr.)

From the example:

1. There are TWO (2) approach lanes.
2. The queue length, N, is FOUR (4) cars per lane.
3. The red light to cycle time ratio, ϕR, is 30/60 = 0.5
4. The traffic volume, V, is 1000/2/1000 = 0.5
5. The average road speed, S, is 30 mph
6. The analysis year is 1975.

From Table I for N = 4 and two approach lanes

7. C_q = 1.19 and
8. E = 0.149

From Table II for 1975

9. Q_q = 14.1 and,
10. Q_f = 53.0

From Table III, for S = 30 in 1975,

A = 1.190
B = -7.27
C = 6.11

Using equation (4) in Table III

$$F = \exp\,(A + 0.01BS + .0001CS^2)$$

$$F = \exp\,(1.19 + (0.01)(-7.27)(30) + (.0001)(6.11)(30)^2)$$

$$F = \exp\,(1.19 - 2.18 + 0.55) = \exp\,(-0.44)$$

Therefore:

$$F = 0.64$$

Substituting these values into equations (1) gives

$$CO = (14.1)\ (0.5)\ (1.19) + (0.1726)\ (53.0)\ (1-0.5)\ (0.5)\ (0.15)\ (0.64)$$

$$CO = 8.4\ \text{ppm} + 0.2\ \text{ppm} = 8.6\ \text{ppm}$$

which implies that the maximum predicted eight hour concentration will be 8.6 ppm. This result, in the DEP analysis procedure, would be rounded off to 9 ppm. However, since 9 ppm is not exceeded, this would not be considered a violation of the NAAQS.

TABLE I

	1 Approach Lane		2 Approach Lanes		3 Approach Lanes		4 Approach Lanes		5 Approach Lanes	
N	Cq	E	Cq	E	Cq	E	Cq	E	Cq	E
0*	0	.719	0	1.25	0	1.66	0	1.97	0	2.22
1	.260	.078	.458	.149	.619	.214	.753	.274	.869	.330
2	.445	.078	.808	.149	1.11	.214	1.37	.274	1.59	.330
3	.559	.078	1.04	.149	1.46	.214	1.82	.274	2.14	.330
4	.632	.087	1.19	.149	1.69	.214	2.13	.274	2.54	.330
5	.690	.087	1.30	.164	1.85	.235	2.36	.281	2.82	.330
6	.746	.099	1.40	.164	2.01	.235	2.55	.300	3.05	.360
7	.794	.099	1.50	.187	2.13	.266	2.72	.300	3.28	.360
8	.836	.099	1.59	.187	2.26	.266	2.87	.337	3.45	.360
9	.870	.099	1.66	.187	2.38	.266	3.03	.337	3.63	.402
10	.905	.121	1.72	.187	2.48	.266	3.17	.337	3.81	.402
11	.943	.121	1.78	.225	2.56	.266	3.29	.337	3.96	.402
12	.976	.121	1.84	.225	2.63	.266	3.39	.337	4.09	.402
13	1.01	.121	1.91	.225	2.72	.316	3.48	.337	4.21	.402
14	1.04	.121	1.97	.225	2.81	.316	3.58	.396	4.32	.402
15	1.06	.121	2.02	.225	2.89	.316	3.69	.396	4.43	.467
16	1.09	.121	2.07	.225	2.97	.316	3.79	.396	4.56	.467
17	1.11	.121	2.11	.225	3.04	.316	3.89	.396	4.68	.467
18	1.13	.121	2.15	.225	3.10	.316	3.98	.396	4.79	.467
19	1.15	.121	2.19	.225	3.16	.316	4.06	.396	4.89	.467
20	1.17	.121	2.23	.225	3.22	.316	4.14	.396	4.99	.467

TABLE II

YEAR	Qq	Qf
1976	13.8	46.4
1977	13.6	39.5
1978	13.4	33.1
1979	13.2	27.2
1980	13.1	22.1
1985	13.0	6.7
1990	13.0	4.0

*Note: When no queuing is present (i.e., free flow situation), the worst case conditions for the EPA HIWAY Model are used (i.e., a wind speed of 2 mph and wind direction of 10°).

Speed Correction Factor (F)

The general equation is described in Table 3.1.2-6 in draft AP-42 and is:

$$F = \exp\,(A + .01BS + .0001CS^2), \qquad (4)$$

WHERE

S = average speed (MPH)

EPA supplies the values of A,B, and C in Table 1-23 in the draft attachment AP-42 for different age automobiles. The Connecticut auto distribution was then applied to A, B, and C to determine the appropriate value for each calendar year. The following table resulted:

Calendar Year	A	B	C
1974	1.169	-7.16	6.09
1975	1.190	-7.27	6.11
1976	1.208	-7.36	6.12
1977	1.220	-7.42	6.12
1978	1.228	-7.45	6.11
1979	1.231	-7.48	6.10
1980	1.231	-7.48	6.10
1981	1.242	-7.53	6.11
1982	1.242	-7.53	6.10
1983	1.241	-7.52	6.09
1984	1.241	-7.52	6.09
1986	1.241	-7.52	6.09
1987	1.241	-7.52	6.09
1988	1.241	-7.52	6.09
1989	1.241	-7.52	6.09
1990	1.241	-7.52	6.09

TABLE III

APPENDIX III

CARBON MONOXIDE ANALYSIS RESULTS

GLOSSARY

ADT. Average Daily Traffic on a road.

AMBIENT AIR. Outdoor atmosphere.

CO. Carbon Monoxide, an air pollutant.

DEP. Department of Environmental Protection.

DIRECTIONAL LINK. All lanes of a roadway going in one direction from one intersection to another.

DOT. Department of Transporation.

EXISTING CASE. Analysis based upon the conditions now existing.

FMVECP. The Federal Motor Vehicle Emission Control Program.

FREE FLOW. A mode of vehicle travel in which the vehicles are moving without interruption.

FUTURE (BUILD) CASE. Analysis based upon the conditions one year after the indirect source is projected to begin operation.

FUTURE (NO-BUILD) CASE. Assuming the indirect is not built, analysis based upon the conditions one year after the indirect source was projected to begin operation.

GEOMETRIC IMPROVEMENTS. Changes in the physical layout of the roadway, intersection, etc.

GRAVITY MODEL. One of several ways to predict from where vehicles originate in going to a site and what roads they will most likely follow to the site.

IDLE. The mode of vehicle operation in which the motor is running, but the vehicle is not moving, such as at a stop sign.

INDIRECT SOURCE. A facility which has or leads to associated activity as a result of which CO is or may be emitted.

MODELING. A mathematical approach to predicting either traffic or air pollution levels.

NAAQS. National Ambient Air Quality Standards are the levels of pollution above which there is a violation of Federal and State laws. For CO, the standards are 35 ppm for a one hour period and 9 ppm for an eight hour period.

PEAK HOURLY SOURCE-GENERATED TRAFFIC. The maximum total number of vehicles arriving at and leaving the source during a one hour period.

PPM. Parts per million parts, a volumetric measure similar to percent (%) except that it is the parts of a million rather than the parts in one hundred.

QUEUE. A line; in this report, a line of idling vehicles.

QUEUE LENGTH. The number of vehicles in the queue.

RED TIME. The time during a traffic signal cycle when the light is red for a specified directional link.

SIGNALIZATION. The red-green-yellow-red characteristics of an intersection.

STC. The State Traffic Commission.

TOPICS. One of several programs through which cities and towns have studied and upgraded traffic patterns.

TOTAL CYCLE TIME. The total time required for a traffic signal to go through one red-green-yellow cycle.

APPENDIX A.4: Outdated Indirect Source Permit Criteria

A.P. FORM I.S.-7-1/6 /76

DEPARTMENT OF ENVIRONMENTAL PROTECTION

INDIRECT SOURCE PERMIT LIMIT CRITERIA[1]

The Permit Limit Criteria[1] listed below will be used to determine if a proposed indirect source or modification to an existing indirect source must receive an Indirect Source Construction Permit prior to commencing construction.

TYPE OF SOURCE	PERMIT LIMIT (at least)
Administrative/Research Facility	630 Employees
Airport	50,000 Commercial Flights/year or 1,600,000 Passengers/year
Hospital	380 Beds
Housing	
Multi-Family Dwellings	630 Dwelling Units
Single-Family Dwellings	500 Dwelling Units
Independent Parking Area	400 Parking Spaces[2]
Industrial	
One Shift Operation	560 Employees
Two Shift Operation	560 Employees
Three Shift Operation	800 Employees
Medical Clinic	80 Doctors
Motel/Hotel	630 Rooms
Office Building	220,000 GFA[3]
Recreational Facility	
Hiking, Camping, Picnicking	645 Parking Spaces
Lake, Pond, Pool Swimming	470 Parking Spaces
Ocean Swimming	780 Parking Spaces
Restaurant	
Drive-In	2,300 GFA[3]
Sit Down	11,400 GFA[3]
Roadway/Highway	1,000 DDHV[4]
School/College	1,660 Students
*Shopping Center	98,000 GFA[3]
Sports Complex/Entertainment Theater	1,250 Seats
Warehouse	330 Employees

Any other proposed indirect source or modification to an indirect source which has at least 400 new Parking Spaces or 60,000 GFA[3] may need an Indirect Source Construction Permit. The owner of such Indirect source must obtain and file an Indirect Source Questionnaire. The owner will be notified ten (10) days after the questionnaire is received whether a permit is required.

ADDRESS ALL INQUIRIES TO:

Department of Environmental Protection
Air Compliance Unit
Indirect Source Group
State Office Building
Hartford, Connecticut 06115

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[1] The limits are based on the generation of 500 total vehicle trips, whether inbound and/or outbound, during the indirect source's peak hour of traffic generation; the trips are computed by using average trip generation factors for each "Type of Source".

[2] A parking area associated with another indirect source (e.g., hotel parking area, hospital parking area, sports complex parking area, etc.) must apply for a permit if it has 400 or more parking spaces in excess of the number mandated by the local building regulations for the particular indirect source being served.

[3] GFA is gross floor area in square feet.

[4] DDHV (Design Directional Hourly Volume): refers to the volume of traffic in one direction; not the total volume of traffic on the road.

*NOTE: The Shopping Center Permit Limit has been changed from 90,000 GFA to 98,000 GFA.

APPENDIX B: SUPPORTING MATERIAL FOR NEW YORK

B.1: New York Rules on Indirect Sources of Air Contamination B-2

B.2: Air Quality Analysis Requirements B-6

APPENDIX B.1: New York Rules on Indirect Sources of Air Contamination

NEW YORK RULES ON INDIRECT SOURCES OF AIR CONTAMINATION

(Official Compilation of Codes, Rules and Regulations, Title 6, Chapter III, Subchapter A; Part 203 – Indirect Sources of Air Contamination; Effective January 13, 1975; Amended February 26, 1975)

Section 203.1 *Applicability.*

(a) This Part shall apply throughout the State of New York; provided, however, that the Commissioner may by order filed with the Secretary of State exempt persons in a city or county in whole or in part from the provisions of this Part where he has determined that such city or county has enacted a local law, ordinance or regulation which will achieve the purposes of this Part or applicable portions thereof, and that such city or county has adequate staff to enforce and will enforce the provisions of such local law, ordinance or regulation; and provided, further, that the Commissioner may by order filed with the Secretary of State delegate the enforcement of this Part in whole or in part to a city or a county where he has determined that such city or county has adequate staff to enforce and will enforce the provisions of this Part or applicable portions thereof. (NOTE: The following cities and counties have been determined exempt or been delegated enforcement responsibilities: New York City.)* He may revoke any such exemption or delegation where he determines that the stated conditions no longer exist. An order of exemption or delegation may contain such provisions concerning review of actions of any such city or county as the Commissioner may deem necessary.

(b) Except as provided in section 203.3, this Part shall not apply to the construction or modification of an indirect source of air contamination if such construction or modification commenced prior to the effective date of this Part. For the purpose of this subdivision, construction or modification will be deemed to have commenced if a person has entered into a contract for paving or installation of foundations or for the fabrication, erection or installation of the building components of an indirect source or associated parking area and has engaged in a continuous program of on-site construction or modification of such source or area; except that in the case of roads, highways and airports where acquisition of land is required, an appropriation of land through eminent domain proceedings as evidenced by the filing of a description and map in the office of the appropriate county official or the negotiated purchase of land as evidenced by a binding contract of purchase, shall constitute the commencement of construction or modification, if followed by a continuous program of on-site construction or modification. Interruptions resulting from force majeure shall be disregarded in determining whether a construction or modification program is continuous.

(c) With respect to any indirect source to which the owner or operator believes this Part does not apply, the owner or operator may request in writing an applicability ruling from the Commissioner.

Section 203.2 *Definitions.* As used in this Part, the following terms shall have the indicated meanings unless noted otherwise:

(a) "Indirect source of air contamination" or "indirect source" means a facility, building, structure or installation the construction or operation of which results or may result directly or indirectly in associated vehicular movements or aircraft operations which contribute to ambient concentrations of any pollutant for which there is an ambient air quality standard adopted pursuant to the Federal Clean Air Act, as amended, (42 U.S.C. 1857 et seq., hereinafter referred to as the "Act"), including but not limited to:

(1) highways and roads;

(2) parking facilities, including lots and garages;

(3) shopping centers and other retail and commercial facilities;

(4) recreational centers, amusement parks, sports stadiums and entertainment facilities;

(5) residential complexes;

(6) airports;

(7) office, institutional and industrial facilities;

(8) hotels and motels;

(9) theaters; and

(10) hospitals.

(b) "Associated parking area" means a parking facility or facilities operated in conjunction with an indirect source.

(c) "Aircraft operation" means an aircraft take-off or landing.

(d) "Commence construction" or "commence modification" means to initiate a program of on-site construction, including, but not limited to, site clearance, grading, dredging, land filling or entering into a contract for paving or installation of foundations or for the fabrication, erection or installation of building components, specifically designed for an indirect source or an associated parking area or in preparation for the fabrication, erection or installation of the building components of an indirect source.

(e) "Urban area" means any of the following counties:

(1) Albany, Rensselaer, Saratoga and Schenectady Counties (Albany-Schenectady-Troy area)

(2) Broome and Tioga Counties (Binghamton area)

(3) Erie and Niagara Counties (Buffalo area)

(4) Chemung County (Elmira area)

(5) Nassau, Rockland, Westchester and Suffolk Counties, and the counties of New York City (New York area)

(6) Dutchess County (Poughkeepsie area)

(7) Livingston, Monroe, Orleans and Wayne Counties (Rochester area)

(8) Madison, Onondaga and Oswego Counties (Syracuse area)

(9) Oneida and Herkimer Counties (Utica-Rome area)

Section 203.3 *Prohibitions.*

(a) No person shall commence construction or modification of an indirect source of air contamination or associated parking area without having a valid permit to construct issued by the Commissioner pursuant to this Part. The foregoing prohibitions shall apply only to:

(1) The construction or modification of any parking facility or any associated parking area in New York County.

(2) Any airport, the construction or modification of which results or may result in the following activity within ten years after completion of the construction or modification:

(i) In the case of a new airport, 50,000 or more aircraft operations per year by regularly scheduled air carriers, or use by 1,600,000 or more passengers per year.

(ii) In the case of a modified airport, an increase of 50,000 or more aircraft operations per year by regularly scheduled air carriers over the existing annual volume of aircraft operations, or an increase of 1,600,000 or more passengers per year.

(3) Within an urban area:

(i) The construction of any new parking facility, or other new indirect source with an associated parking area, which adds new parking capacity of 1,000 vehicles or more;

(ii) The modification of any parking facility or any associated parking area which, by itself or when added together with all parking capacity constructed subsequent to November 4, 1973 or the date the latest permit to construct has been issued for such facility or area, will produce parking capacity of 500 vehicles or more, unless such modification is permitted under the latest permit to construct;

(iii) The construction of any road or highway section on which the annual average of daily traffic volume within ten years of completion of construction exceeds or may exceed 20,000 vehicles;

(iv) The modification of any existing section of road or highway which increases or may increase the annual average of daily traffic volume within ten years of completion of modification by more than 10,000 vehicles.

(4) Outside an urban area,

(i) The construction of any new parking facility, or other new indirect source with an associated parking area, which adds new parking capacity of 2,000 vehicles or more;

(ii) The modification of any parking facility or of any associated parking area which, by itself or when added together with all parking capacity constructed subsequent to November 4, 1973 or the date the latest permit to construct has been issued for such facility or area, will produce parking capacity of 1,000 vehicles or more, unless such modification is permitted under the latest permit to construct.

(5) Whenever an indirect source or associated parking area is to be constructed or modified in planned incremental phases, the Commissioner may approve any or all such phases prior to the initiation of any such phase.

(b) No person shall operate an indirect source of air contamination, the construction or modification of which requires a permit under subdivision (a), without first having obtained a permit to construct and no person shall operate an indirect source which does not comply with the terms and conditions of the applicable permit to construct.

Section 203.4 *Application for permit.*

(a) An application for a permit to construct shall be filed with the Commissioner in such form and manner and contain such information as the Commissioner may require pursuant to guidelines which shall be made available to any person on request. Such information may include the submission by the applicant of appropriate atmospheric diffusion models, measured air quality data, reliable analyses and such other additional information, testing or documentation as the Commissioner may reasonably require to determine compliance with Section 203.9.

(b) After receipt of an application or supplement or correction thereto the Commissioner will advise the applicant of any deficiency in the information submitted in support of the application. In the event of such a deficiency, the application shall not be considered complete until all required information has been supplied.

(c) An applicant may be required to file with the application an undertaking in an amount fixed by the Commissioner to guarantee payment of the costs of any public hearing.

Section 203.5 *Preliminary review of applications and public comment.*

(a) After receipt of a completed application, the Commissioner will make a preliminary analysis of the application and a preliminary determination whether he intends to approve, approve with conditions or deny the application and the applicant shall publish at its own expense a notice of application in the form prescribed by the Commissioner once a week for two consecutive weeks in one newspaper designated by the Commissioner having a general circulation in the county in which the proposed construction or modification of an indirect source is to occur. The applicant shall give such additional notice as

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*ORDER

Pursuant to subdivision 203.1(a) of Part 203 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, I, Ogden Reid, Commissioner of the New York State Department of Environmental Conservation, hereby delegate the administration of Part 203 within the City of New York to the Administrator of the Environmental Protection Administration of the City of New York, subject to the following conditions:

A. This delegation shall not affect applications for indirect sources or modifications owned by the State of New York.

B. This delegation shall not affect any application upon notification by me to the applicant and to the Administrator of the Environmental Protection Administration of the City of New York.

C. The Environmental Protection Administration of the City of New York shall report to me at least quarterly on applications received and permits to construct, issued or denied, in such form as I may prescribe.

Dated: Albany, New York
February 26, 1975
[filed March 21, 1975]

OGDEN REID
By S/JOHN HANNA, JR.
Deputy Commissioner

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the Commissioner may require in order adequately to inform the public of such application.

(b) The notice shall provide for opportunity for written public comment on such application within a stated period not less than thirty days after the date of first publication and shall specify that the application and the Commissioner's preliminary analysis and determination are available for public inspection and copying at one or more specified locations in the affected air quality control region. Prior to the end of the public comment period, proof of notice shall be submitted to the appropriate regional office of the Department.

(c) A copy of the notice shall be sent by the applicant to: the regional administrator of the United States Environmental Protection Agency; all other State and local air pollution control agencies having jurisdiction in the air quality control region in which the indirect source is proposed to be built; the chief executive of the appropriate city, town, village and county; the appropriate County and Regional Planning Boards; and any appropriate local board or committee charged with responsibility for activities in the conduct of the urban transportation planning process (3-C process) pursuant to 23 U.S.C. 134.

(d) After the period for public comment specified in such notice, the Commissioner will hold a hearing if he determines that there is sufficient public interest in and reason for such a hearing or if the applicant so requests. In making such a determination, he will consider the public comments received, including any requests for a public hearing, and the anticipated impact of the indirect source's effect on air quality. In the event that he determines that a hearing is appropriate, he will direct the applicant to publish notice of such a hearing as prescribed in section 203.6. The hearing shall be held not less than thirty days after notice is first given.

(e) The applicant shall bear the costs of any such hearing, making payment directly to the provider of the services, material or facilities, including the following:

(1) stenographic and other costs of producing the record;

(2) newspaper publication and other costs of giving notice; and

(3) costs of renting any necessary facilities and equipment for holding the hearing.

(f) The Commissioner will consider any public comments timely received in making his final determination. The applicant will be given an opportunity to submit a written response to any public comment and the Commissioner will consider such response in making his final determination.

(g) The Commissioner may dispense with the period for public comment and proceed directly to a public hearing if he determines that the anticipated impact of the proposed project on air quality and/or the public interest so requires or if the applicant so requests. In such a case the applicant shall give notice of hearing instead of notice of application. The notice of hearing shall contain the information required by this section.

Section 203.6 *Public notice of hearings.*

Public notice of any hearing held pursuant to section 203.5 shall be in a form prescribed by the Commissioner and be circulated in the same manner as specified in section 203.5. It shall specify that the hearing shall be held not less than thirty days after the date of first publication and that persons wishing to be heard at such public hearing may file a statement of the grounds of support of, opposition to or interest in the application at a specified office of the Department prior to the date of the public hearing. It shall also specify that persons may submit their comments for the record whether or not wishing to be heard. Proof of notice shall be submitted prior to the date of the public hearing.

Section 203.7 *Public hearing procedures.*

(a) Parties to the public hearing held pursuant to section 203.5 shall be the applicant, any person who files a written public comment or statement pursuant to section 203.5(b) or section 203.6, any municipality within the boundary of which the indirect source is located and such other persons as the hearing officer shall, in his discretion, determine to be in the public interest to permit to intervene as a party, either generally or for a special purpose.

(b) At any public hearing held pursuant to section 203.5, any party shall be afforded the opportunity to present oral or written statements or arguments and to present evidence on issues of fact; provided, however, that the Department shall have the discretion to fix reasonable time limits on the presentation of oral statements or evidence and when time and scheduling considerations necessitate, may require the submission of statements, arguments or evidence in writing.

(c) The public hearing shall be conducted by a hearing officer designated by the Commissioner. The hearing officer is empowered to:

(1) Provide for the taking of written and oral statements or data;

(2) Require the submission of sworn testimony and permit the cross-examination of witnesses subject to such limitations as he may impose to avoid irrelevant or repetitious cross-examination;

(3) Regulate the course of the hearing, fix the time for the filing of written statements, arguments and evidence, provide for the scheduling and preservation of oral statements, arguments and evidence, and set the time and place for continued hearings; and

(4) Take notice of general and scientific facts, provided that he shall give the parties an opportunity to contest the facts so noticed.

(d) Any materials, including records and documents, in the possession of the Department or which are relevant to the application, may be relied upon by the Commissioner in making his determination. Any document relied on by the Department shall be available for inspection by the parties.

(e) The hearing officer shall make findings of fact and his recommended determination and give reasons for such recommendation and shall forward them to the Commissioner.

(f) The Commissioner may at any time direct the hearing be reopened prior to issuance of the permit to construct where the public interest so requires.

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(g) In the event no hearing is held, an official file shall be compiled by the Department consisting of documents submitted by the applicant, any public comments and any additional documents relied on by the Department with respect to the application. Any document made part of such official file shall be available for inspection by the applicant and other interested persons.

(h) The Commissioner may at any time prior to the issuance of the permit to construct request additional information from the applicant.

Section 203.8 *Determination.*

(a) The Commissioner may issue or deny the permit to construct or issue it subject to conditions as provided in section 203.10.

(b) The Commissioner will notify the applicant and any parties to any public hearing in writing of his approval or disapproval of the application. If he disapproves the application, approves it with substantial modifications or if there has been a public hearing, he shall set forth the reasons for his decision.

Section 203.9 *Standards for issuance of permit.*

(a) The Commissioner will not issue a permit to construct unless he determines that:

(1) the operation of the indirect source of air contamination or any associated parking area will not cause a violation of any applicable ambient air quality standard adopted pursuant to the Act and in effect at the time of the issuance of the permit or, where a violation of such standard exists, will neither increase the ambient concentration of the applicable pollutant nor interfere with attainment or maintenance of such standard.

(2) the operation of the indirect source of air contamination or any associated parking area will not result in any violation of applicable portions of any control strategy of an applicable air quality implementation plan approved or promulgated under the Act and in effect at the time of the issuance of the permit; and

(3) the operation of the source will not result in a violation of any of the provisions of this chapter.

(b) For purposes of this section, the applicable ambient air quality standards for:

(1) construction of highway sections which will produce an annual average of daily traffic volume of 50,000 or more vehicles within ten years of completion of construction;

(2) modification of a highway section which will increase the annual average of daily traffic volume by 25,000 vehicles or more within ten years after completion of modification; and

(3) airports

shall mean the standards for carbon monoxide, photochemical oxidants and nitrogen dioxide adopted pursuant to the Act. For all other indirect sources, the applicable ambient air quality standard shall mean the standard for carbon monoxide adopted pursuant to the Act. Determinations of whether a violation of such standards will be caused or whether, in the case of an existing violation, ambient concentrations will be increased will be based on anticipated ambient concentrations as of the time of completion of the proposed construction or modification of any phase thereof and during a reasonable time thereafter. In the case of highway sections and airports such time shall be a ten year period following such completion.

(c) The Commissioner will make the determination pursuant to paragraph (a)(1) of this section for carbon monoxide by evaluating the anticipated ambient concentrations of carbon monoxide at receptor or exposure sites where people might reasonably be expected to be exposed and which will be affected by the vehicular movements expected to be attracted by the indirect source; such determination shall be based upon traffic flow characteristic guidelines, appropriate atmospheric diffusion models, any other reliable analytic method or any combination thereof.

(d) The Commissioner will make the determination pursuant to paragraph (a)(1) of this section for photochemical oxidants and nitrogen dioxide by evaluating the anticipated ambient concentrations of such pollutants at one or more locations determined by him to be representative of the points of greatest exposure within the affected area.

Section 203.10 *Approval subject to conditions.*

(a) Whenever an indirect source as proposed by an applicant would not be permitted to be constructed or modified because of failure to meet the standards set forth in section 203.9, the Commissioner may approve the application subject to such conditions as will permit such source, if constructed or modified in accordance with such conditions, to meet the standards set forth in section 203.9.

(b) Notwithstanding the provisions related to modified indirect sources contained in section 203.3, the Commissioner may condition any approval by specifying the extent to which and the period within which the indirect source, when completed, may not be further modified without approval of such modification under this Part.

(c) The Commissioner may at the time of issuance of the permit attach such other conditions, including monitoring requirements, as will assure compliance with the permit or the provisions of this Part; provided, however, that no condition shall be imposed which would require partial or complete curtailment of operation of the indirect source based on unanticipated changes of ambient concentrations of pollutants for which the applicant cannot be responsible; except that nothing herein shall relieve the applicant from responsibility to comply with the provisions of any present or future applicable implementation plan.

Section 203.11 *Expiration of permit.*

Unless otherwise specified therein, a permit to construct shall expire when no construction or modification has been commenced within a period of two years after the issuance of the permit or when no substantial progress is made in such construction or modification for a period of two years. For the purpose of this section, interruptions resulting from force majeure shall be disregarded. The Commissioner may extend any time period upon a satisfactory showing that an extension is justified.

Section 203.12 *Modification of permit.*

The permit to construct or any condition thereof may be amended at any time upon written application to the Commissioner and a showing that modification thereof will not result in violation of the standards contained in Section 203.9. The Commissioner may require reapplication under Section 203.4 where he determines that there may be significant public interest in such modification.

Section 203.13 *Suspension and revocation of permits.*

The Commissioner may suspend a permit to construct at any time upon any of the following grounds:

(a) Failure to construct the indirect source substantially in accordance with the application as approved;

(b) Failure to operate the indirect source in accordance with any conditions imposed by the Commissioner in the permit; or

(c) Materially false or misleading statements in the application or supporting papers.

Section 203.14 *Transfer of permits.*

A permit to construct shall be transferable in whole or in part unless and until the transferee has filed a verified statement with the Department acknowledging that the transferee will comply with all the conditions of the permit.

Section 203.15 *Procedures for certain highway projects.*

With respect to highway projects for which the New York State Department of Transportation prepares environmental impact statements pursuant to the provisions of the National Environmental Policy Act (42 U.S.C. 4321 et seq.), the Commissioner may by memorandum of understanding with the Commissioner of Transportation provide for public notice and hearing procedures which differ from those set forth in this Part and which are consistent with Federal and State statutes and regulations. Nothing contained in this section shall be deemed to relieve the Commissioner of the responsibility to review any such project for compliance with the standards contained in Section 203.9.

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APPENDIX B.2: Air Quality Analysis Requirements

AIR QUALITY ANALYSIS REQUIREMENTS

by DOT/DEC Agreement 1/10/75

roject Location and Scope equirement	SMSA[1]				Non-SMSA			
	Metropolitan[2]		Non-Urban[3]		Urban[4]		Rural[5]	
	major[6]	minor[7]	major	minor	major	minor	major	minor
ndirect Source Permit[8]	X		X					
mbient Monitoring[9]	X	(13)	(13)		(13)		(13)	
O emissions (microscale area) [10]	X	X	X	X	X	X	X	X
O concentrations (microscale area)	X	X	X	X	X	X	X	
O, HC, NO emissions (mesoscale area) [11]	X	X	X (HC only)	X (HC only)	X[14]			
onstructions impacts[12]	X	X	X	X	X	X	X	X

NOTES:

1 **Standard Metropolitan Statistical Areas** as defined by the U.S. Bureau of the Census (areas enclosed by solid lines on attached map - boundaries are county lines). (Dutchess County is not yet actually a legal SMSA, but will likely be so defined at the next Census, and therefore has been included in State Indirect Source regulations by N.Y.S. Department of Environmental Conservation.)

2 **SMSA Metropolitan Areas** are defined by DOT/DEC agreement (shaded areas on attached map - boundaries are town lines)

3 **SMSA Non-Urban Areas** are the non-Metropolitan portions of SMSA's (areas between shading and solid outlines on attached map)

4 **Non-SMSA Urban Areas** are defined as any place of over 5,000 population (central city/village and adjacent suburbs combined) outside an SMSA

5 **Non-SMSA Rural Areas** comprise all parts of the state not included in the above three definitions.

6 Projects requiring major air quality analysis are defined by DEC as being those which meet Indirect Source Regulation traffic criteria (see (8) below)

7 Projects requiring minor air quality analysis are those not meeting the criteria in (6) above.

8 **Indirect Source Regulations** require that a construction permit be obtained from DEC for any highway project on new ROW forecast to carry 20,000 or more AADT within 10 years of completion, or for any upgrading of existing ROW to carry 10,000 or more additional AADT within 10 years of completion. These apply in SMSA's and any other counties so designated by N.Y.S. Department of Environmental Conservation. To date, Dutchess is the only County additionally designated.

9 **Ambient Monitoring** in Upstate areas will be for Carbon Monoxide only; for Carbon Monoxide, non-Methane Hydrocarbons, Nitrogen Dioxide, and Ozone in the New York City area. Monitoring will normally be for a 13-week period. Adequate meteorological data will be simultaneously collected.

10 **Microscale** analysis area is defined as the immediate vicinity of the project corridor, including secondary impacts on parallel and intersecting roadways whose traffic volumes would be substantially changed by completion of the project. (Microscale analysis should include such secondary impacts even if the facilities involved are at substantial distances from the project, if the emissions involved are significantly large (i.e., of an order of magnitude comparable to the emissions of the project itself).)

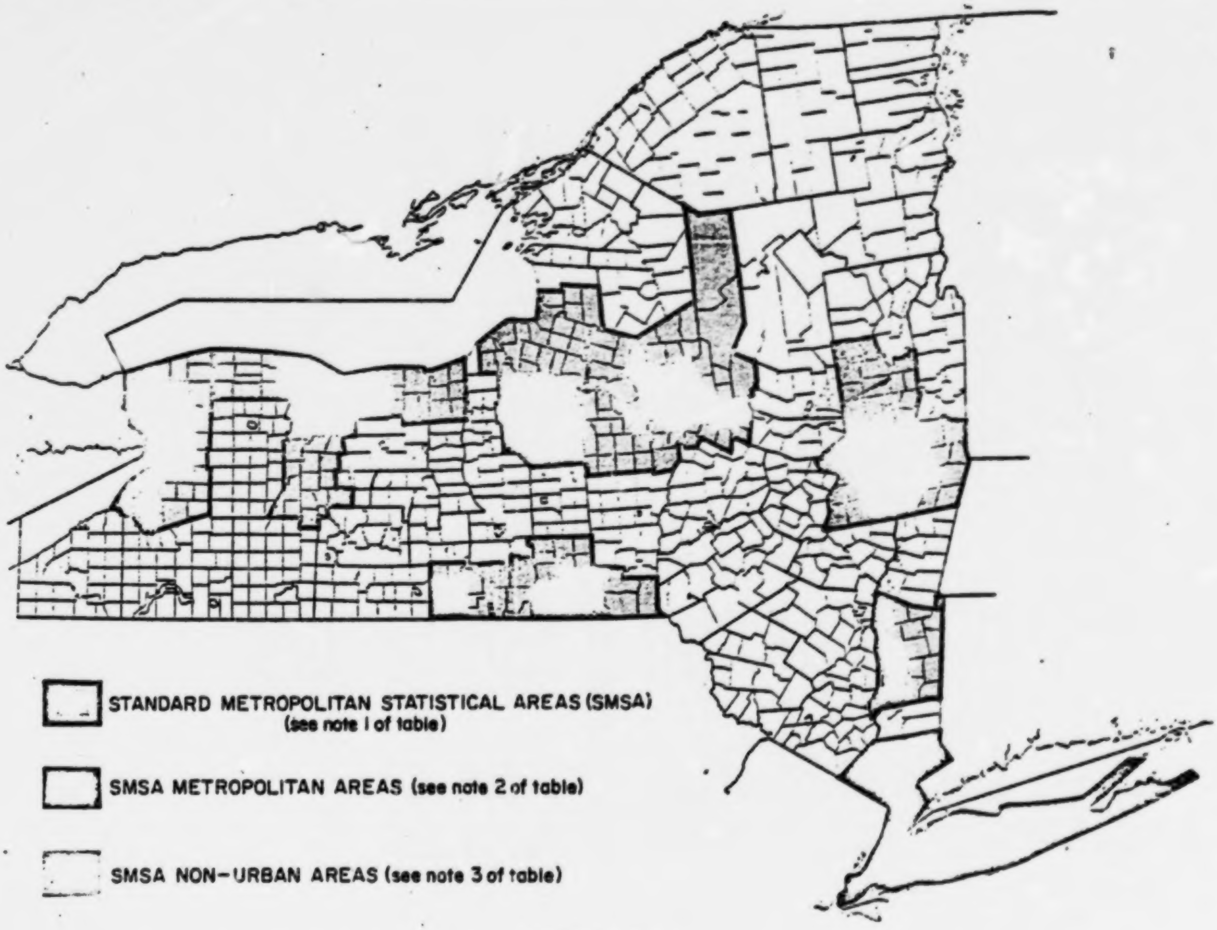
11 **Mesoscale** analysis area within an SMSA is defined as the county or counties within which the project is located. Outside an SMSA, it is defined as the corridor of contiguous towns within which the project is located. For projects very near a civil boundary, adjacent civil divisions may be included as appropriate. Mesoscale analysis will normally be done in terms of emissions ("pollutant burden") only.

12 **Construction impacts** discussion centers around NYSDOT contract provisions to control pollution via dust and open burning control, etc. etc.

13 Projects in these categories may require ambient monitoring, depending upon the anticipated severity of the local air quality problems. The Main Office Environmental Analysis Section will assist the Regional Office in making this determination on a case-by-case basis, including any appropriate consultation with environmental review agencies.

14 **Mesoscale** analysis is required for non-SMSA Urban Areas only when the total population of the mesoscale analysis area exceeds 25,000 (including the 5,000 of the central "non-SMSA Urban Place").

General: All analyses of pollutants are to be done relative to the appropriate standards, e.g., 1-hour and 8-hour CO microscale concentration; 8-hour CO, 3-hour n-MHC, annual NO_2 mesoscale. Analyses are to be done for Estimated Time of Completion and 5-year intervals to ETC + 20 years.


STANDARD METROPOLITAN STATISTICAL AREAS (SMSA) (see note 1 of table)
SMSA METROPOLITAN AREAS (see note 2 of table)
SMSA NON-URBAN AREAS (see note 3 of table)

APPENDIX C: SUPPORTING MATERIAL FOR OREGON

C.1: Oregon Indirect Source Regulation C-2

C.2: Example Oregon Short Form Permit Application C-7

APPENDIX C.1: Oregon Indirect Source Regulation

Rules for Indirect Sources

licy

340-20-100 The Commission finds and declares direct Sources to be air contamination sources as fined in ORS 468.275. The Commission further finds d declares that the regulation of Indirect Sources is cessary to control the concentration of air contamin- ts which result from Motor Vehicle Trips and/or rcraft Operations associated with the use of Indirect urces.

Statutory Authority: ORS 468.020 and 468.320
Hist: Filed 12-5-74 as DEQ 81, Eff. 12-25-74
Refiled 3-17-76 by DEQ 110(Temp)
Refiled 8-11-76 by DEQ 118

risdiction and Delegation

340-20-105 The Commission finds that the com- exity or magnitude of Indirect Sources requires ate-wide regulation and assumes or retains jurisdic- on thereof. The Commission may, however, when any gional Authority requests and provides evidence monstrating its capability to carry out the provisions these rules relating to Indirect Sources, authorize d confer jurisdiction upon such Regional Authority perform all or any of such provisions within its undary until such authority and jurisdiction shall be ithdrawn for cause by the Commission.

Statutory Authority: ORS 468.020 and 468.320.
Hist: Filed 12-5-74 as DEQ 81, Eff. 12-25-74
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Refiled 8-11-76 by DEQ 118

efinitions

340-20-110 (1) "Air Quality Maintenance Area AQMA)", means any area that has been identified by e Department having the potential for exceeding any tate ambient air quality standard.

(2) "Air Quality Maintenance Area (AQMA) nalysis", means an analysis of the impact on air uality in an AQMA of emissions from existing air ontaminant sources and emissions associated with rojected growth and development.

(3) "Aircraft Operations" means any aircraft land- g or takeoff.

(4) "Airport" means any area of land or water hich is used or intended for use for the landing and akeoff of aircraft, or any appurtenant areas, facilities, r rights-of-way such as terminal facilities, parking ts, roadways, and aircraft maintenance and repair acilities.

(5) "Associated Parking" means a parking facility or facilities owned, operated, and/or used in conjunction with an Indirect Source.

(6) "Average Daily Traffic" means the total traffic volume during a given time period in whole days greater than one day and less than one year divided by the number of days in that time period, commonly abbreviated as ADT.

(7) "Commence Construction" means to begin to engage in a continuous program of on-site construction or on-site modifications, including site clearance, grading, dredging, or landfilling in preparation for the fabrication, erection, installation, or modification of an indirect source. Interruptions and delays resulting from acts of God, strikes, litigation, or other matters beyond the control of the owner shall be disregarded in determining whether a construction or modification program is continuous.

(8) "Commission" means Environmental Quality Commission.

(9) "Department" means the Department of Environmental Quality.

(10) "Director" means the Director of the Department or Regional Authority and authorized deputies or officers.

(11) "Expressway" means a divided arterial highway for through traffic with full or partial control of access and generally with grade separations at major intersections.

(12) "Freeway" means an Expressway as defined in 340-20-110(9) with full control of access.

(13) "Highway Section" means a highway of substantial length between logical termini (major crossroads, population centers, major traffic generators, or similar major highway control elements) as normally included in a single location study or multi-year highway improvement program.

(14) "Indirect Source" means a facility, building, structure, or installation, or any portion of combination thereof, which indirectly causes or may cause mobile source activity that results in emissionsof an air contaminant for which there is a State standard. Such Indirect Sources shall include, but not be limited to:

(a) Highways and Roads
(b) Parking Facilities
(c) Retail, commercial, and industrial facilities
(d) Recreation, amusement, sports, and entertainment facilities
(e) Airports
(f) Office and Government Buildings
(g) Apartments and Mobile Home Parks
(h) Educational Facilities
(i) Hospital Facilities
(j) Religious Facilities

(15) "Indirect Source Construction Permit" means a written permit in letter form issued by the Department or Regional Authority having jurisdiction, bearing the signature of the Director, which authorizes the permittee to commence construction of an Indirect

Source under construction and operation conditions and schedules as specified in the permit.

(16) "Indirect Source Emission Control Program (ISECP)" means a program which reduces Mobile Source emissions resulting from the use of the Indirect Source. An ISECP may include, but is not limited to:

(a) Posting transit route and scheduling information.

(b) Construction and maintenance of bus shelters and turn-out lanes.

(c) Maintaining mass transit fare reimbursement programs.

(d) Making a car pool matching system available to employees, shoppers, students, residents, etc.

(e) Reserving parking spaces for car pools.

(f) Making parking spaces available for park-and-ride stations.

(g) Minimizing vehicle running time within parking lots through the use of sound parking lot design.

(h) Ensuring adequate gate capacity by providing for the proper number and location of entrances and exits and optimum signalization for such.

(i) Limiting traffic volume so as not to exceed the carrying capacity of roadways.

(j) Altering the level of service at controlled intersections.

(k) Obtaining a written statement of intent from the appropriate public agency(s) on the disposition of roadway improvements, modifications, and/or additional transit facilities to serve the individual source.

(l) Construction and maintenance of exclusive transit ways.

(m) Providing for the collection of air quality monitoring data at Reasonable Receptor and Exposure Sites.

(n) Limiting facility modifications which can take place without resubmission of a permit application.

(17) "Mobile Source" means self-propelled vehicles, powered by internal combustion engines including, but not limited to, automobiles, trucks, motorcycles, and aircraft.

(18) "Off-street Area or Space" means any area or space not located on a public road dedicated for public use.

(19) Parking and Traffic Circulation Plan" means a plan developed by a city, county, or regional government or Regional Planning Agency, the implementation of which assures the attainment and maintenance of the state's ambient air quality standards.

(20) "Parking Facility" means any building, structure, lot, or portion thereof, designed and used primarily for the temporary storage of motor vehicles in designated parking spaces.

(21) "Parking Space" means any Off-Street Area of Space below, above, or at ground level, open or enclosed, that is used for parking one motor vehicle at a time.

(22) "Person" means individuals, corporations, associations, firms, partnerships, joint stock companies, public and municipal corporations, political subdivisions, the State and any agencies thereof, and the federal government and any agencies thereof.

(23) "Population" means that population estimate most recently published by the Center for Population Research and Census, Portland State University, or any other population estimate approved by the Department.

(24) "Regional Authority" means a regional air quality control authority established under the provisions of ORS 468.505.

(25) "Regional Planning Agency" means any planning agency which has been recognized as a substate clearinghouse for the purposes of conducting project review under the United States Office of Management and Budget Circular Number A-95, or other governmental agency having planning authority.

(26) "Reasonable Receptor and Exposure Sites" means locations where people might reasonably be expected to be exposed to air contaminants generated in whole or in part by the Indirect Source in question.

Location of ambient air sampling sites and methods of sample collection shall conform to criteria on file with the Department of Environmental Quality.

(27) "Vehicle Trip" means a single movement by a motor vehicle which originates or terminates at or uses an Indirect Source.

Statutory Authority: ORS 468.020 and 468.320
Hist: Filed 12-5-74 as DEQ 81, Eff. 12-25-74
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Amended by DEQ 110(Temp), Filed and Eff. 3-17-76 through 7-14-76
Amended by DEQ 118, Filed and Eff. 8-11-76

Indirect Sources Required to Have Indirect Source Construction Permits

340-20-115 (1) The owner, operator, or developer of an Indirect Source identified in subsection 340-20-115(2) of this section shall not commence construction of such a source after December 31, 1974, without an approved Indirect Source Construction Permit issued by the Department or Regional Authority having jurisdiction.

(2) All Indirect Sources meeting the criteria of this subsection relative to type, location, size, and operation are required to apply for an Indirect Source Construction Permit:

(a) The following sources in or within five (5) miles of the municipal boundaries of a municipality with a Population of 50,000 or more including, but not limited to, Portland, Salem, and Eugene:

(A) Any Parking Facility or other Indirect Source with Associated Parking being constructed or modified to create new or additional parking (or Associated Parking) capacity of 250 or more Parking Spaces, except within the municipal boundary of Portland where the minimum number of Parking Spaces associated with an Indirect Source requiring Department approval shall be 150.

(B) Any Highway Section being proposed for construction with an anticipated annual average daily traffic volume of 20,000 or more motor vehicles per day within ten years after completion, or being modified so that the annual Average Daily Traffic on that Highway Section will be increased by 10,000 or more vehicles per day within ten years after completion.

(b) Except as otherwise provided in this section, the following sources within Clackamas, Lane, Marion, Multnomah, or Washington Counties:

(A) Any Parking Facility or other Indirect Source with Associated Parking being constructed or modified to create new or additional parking (or Associated Parking) capacity of 500 or more Parking Spaces.

(B) Any Highway Section being proposed for construction with an anticipated annual Average Daily Traffic volume of 20,000 or more motor vehicles per day within ten years after completion, or being modified so that the annual Average Daily Traffic on that Highway Section will be 20,000 or more motor vehicles per day, or will be increased by 10,000 or more motor vehicles per day within ten years after completion.

(c) Except as otherwise provided in this section, the following sources in all areas of the State:

(A) Any Parking Facility or other Indirect Source with Associated Parking being constructed or modified to create new or additional parking (or Associated Parking) capacity of 1,000 or more parking spaces.

(B) Any Highway Section being proposed for construction with an anticipated annual Average Daily Traffic Volume of 50,000 or more motor vehicles per day within ten years after completion, or being modified so that the annual Average Daily Traffic on that Highway Section will be 50,000 or more motor vehicles per day, or will be increased by 25,000 or more vehicles per day, within ten years after completion.

(d) Any Airport being proposed for construction with projected annual aircraft operations of 50,000 or more within ten years after completion, or being modified in any way so as to increase the projected number of annual Aircraft Operations by 25,000 or more within 10 years after completion.

(3) Where an Indirect Source is constructed or modified in increments which individually are not subject to review under this section, and which are not part of a program of construction or modification in planned incremental phases approved by the Director, all such increments commenced after January 1, 1975, shall be added together for determining the applicability of this rule.

(4) An Indirect Source Construction Permit may authorize more than one phase of construction where commencement of construction or modification of successive phases will begin over acceptable periods of time referred to in the permit; and thereafter construction or modification of each phase may be begun without the necessity of obtaining another permit.

Statutory Authority: ORS 468.020 and 468.320
Hist: Filed 12-5-74 as DEQ 81, Eff. 12-25-74
Amended 3-11-75 by DEQ 86, Eff. 4-11-75
Amended by DEQ 110(Temp), Filed and Eff. 3-17-76 through 7-14-76
Amended by DEQ 118, Filed and Eff. 8-11-76

Establishment of an Approved Parking and Traffic Circulation Plan(s) by a City, County, or Regional Government or Regional Planning Agency

340-20-120 (1) Upon determination by the Department or Regional Authority that control of Parking Spaces and traffic circulation is necessary to ensure attainment and maintenance of state and national ambient air quality standards (S/NAAQS), the Department or Regional Authority shall notify the Commission of the geographic areas determined or projected to be in noncompliance. The basis for the Department's determination shall be the findings and conclusions of an Air Quality Maintenance (AQMA) Analysis or similar air quality study. Upon submission of its findings to the Commission, the Department shall give notice to cities, counties, regional governmental units, or Regional Planning Agencies located in geographic areas determined or projected to be in noncompliance with S/NAAQS, that a public hearing shall be held on the Department's findings related to the need to control Parking Spaces and Traffic Circulation. After reviewing the public hearing testimony and the Department's findings, the Commission shall determine if it is in concurrence with the Department's findings. Upon the Commission's concurrence of the Department's findings, the Department or Regional Authority shall so notify the city, county, regional government unit, or Regional Planning Agency of the geographic areas determined or projected to be in noncompliance.

Within one-hundred twenty (120) days of receipt of such notification, the appropriate city, county, regional, or other local governmental unit or planning agency shall proceed, in accordance with a specific plan and time schedule agreed to by the appropriate governmental unit or planning agency and the Department to develop and implement a Parking and Traffic Circulation Plan. The Parking and Traffic Circulation Plan, where required, shall be developed in coordination with the local and regional comprehensive planning process pursuant to the requirements of ORS 197.005 et. seq. The required plan shall be submitted to the Department or Regional Authority for approval within the agreed time schedule but shall not be more than three (3) years after the appropriate city, county or regional government or Regional Planning Agency is notified of the necessity for a Parking and Traffic Circulation Plan for an area within its jurisdiction.

(2) Within sixty (60) days of the notification that development and submittal of Parking and Traffic Circulation Plans are required under section 340-20-120(1) of this rule, each designated city, county or regional government or Regional Planning Agency shall notify the Department or Regional Authority in writing the agency or department and individual responsible for coordination and development of Parking and Traffic Circulation Plans.

(3) The Department or Regional Authority having jurisdiction will include in its notification:

(a) The geographic area requiring the development of Parking and Traffic Circulation Plans;

(b) The time period over which the Plan shall attain and maintain S/NAAQS; and

(c) The air contaminants for which the plan is to be developed.

(4) The Parking and Traffic Circulation Plan shall include, but not be limited to:

(a) Legally identifiable plan boundaries;

(b) Total Parking Space capacity allocated to the plan area, where applicable;

(c) Measures as necessary to provide for the attainment and maintenance of S/NAAQS for the air contaminants for which the Parking and Traffic Circulation Plan area was identified;

(d) Duly enforceable rules, regulations, and ordinances that implement measures that provide for attainment and maintenance of S/NAAQS for a period to be specified by the Department or Regional Authority;

(e) A description of the air quality levels expected as a result of the implementation of the Parking and Traffic Circulation Plan;

(f) Other applicable information which would allow evaluation of the plan such as, but not limited to, scheduling of construction, emission factors, and criteria, guidelines, and zoning ordinances applicable to the plan area;

(g) A description of the administrative procedures to be used in implementing each control measure included in the Parking and Traffic Circulation Plan;

(h) A description of the enforcement methods used to ensure compliance with measures adopted as part of the Parking and Traffic Circulation Plan;

(i) Identification and responsibilities of each city, county, and regional government or Regional Planning Agency designated under subsection 340-20-120(1) of this Rule to implement the Parking and Traffic Circulation Plan.

(5) The Department or Regional Authority having jurisdiction shall hold a public hearing on each Parking and Traffic Circulation Plan submitted and on each proposed revocation or substantial modification thereof, allowing at least thirty (30) days for written comments from public and other interested agencies.

(6) Upon approval of a submitted Parking and Traffic Circulation Plan, the plan shall be identified as the approved Parking and Traffic Circulation Plan, the appropriate governmental unit or planning agency shall be notified and the plan used for the purposes and implementation of this rule.

(7) The appropriate city, county, or regional government or Regional Planning Agency shall annually review an approved Parking and Traffic Circulation Plan to determine if the plan continues to be adequate for the maintenance of air quality in the plan area and shall report its conclusions to the Department or Regional Authority having jurisdiction.

(8) The Department or Regional Authority having jurisdiction shall initiate a review of an approved Parking and Traffic Circulation Plan if it is determined that the Parking and Traffic Circulation Plan is not adequately maintaining the air quality in the plan area.

(9) A city, county, or regional government or Regional Planning Agency may submit a Parking and Traffic Circulation Plan to the Department or Regional Authority having jurisdiction for approval without being required to do so as stated in 340-20-120(1).

Statutory Authority: ORS 468.020 and 468.320
Hist: Filed 12-5-74 as DEQ 81, Eff. 12-25-74
Amended by DEQ 110(Temp)
Filed and Eff. 3-17-76 through 7-14-76
Amended by DEQ 118, Filed and Eff. 8-11-76

Information and Requirements Applicable to Indirect Source(s) Construction Permit Applications Where an Approved Parking and Traffic Circulation Plan is on File

340-20-125 (1) *Application Information Requirements:*

(a) Parking Facilities and Indirect Sources Other Than Highway Sections:

(A) A completed application form;

(B) A map showing the location of the site;

(C) A description of the proposed and prior use of the site;

(D) A site plan showing the location and quantity of Parking Spaces at the Indirect Source and Associated Parking area, points of motor vehicle ingress and egress to and from the site and Associated Parking;

(E) A ventilation plan for subsurface and enclosed parking;

(F) A written statement from the appropriate planning agency that the Indirect Source in question is consistent with an approved Parking and Traffic Circulation Plan or any adopted transportation plan for the region;

(G) A reasonable estimate of the effect the project has on total parking approved for any specific grid area and Parking and Traffic Circulation Plan area.

(b) Highway Section(s):

(A) Items (A) through (C) of subsection 340-20-125(1)(a).

(B) A written statement from the appropriate governmental unit or planning agency that the Indirect Source in question is consistent with an approved Parking and Traffic Circulation Plan and any adopted transportation plan for the region.

(C) A reasonable estimate of the effect the project has on total vehicle miles travelled within the Parking and Traffic Circulation Plan Area.

(2) Within 15 days after the receipt of an application for a permit or addition thereto, the Department or Regional Authority having jurisdiction shall advise the owner or operator of the Indirect Source of any additional information required as a condition precedent to issuance of a permit.

(3) An application shall not be considered complete until the required information is received by the

Department or Regional Authority having jurisdiction.

Statutory Authority: ORS 468.020 and 468.220
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Amended by DEQ 118, Filed and Eff. 8-11-76

Information and Requirements Applicable to Indirect Source(s) Construction Permit Application Where no Approved Parking and Traffic Circulation Plan is on File

340-20-129 (1) Application Information Requirements:

(a) *For Parking Facilities and other Indirect Sources with Associated Parking, other than Highway Sections and Airports, with planned construction resulting in total parking capacity for 1000 or more vehicles, the following information shall be submitted:*

(A) Items (A) through (E) of subsection 340-20-125(1)(a);

(B) Subsection 340-20-125(2) and (3) shall be applicable;

(C) An estimate of the average and maximum daily vehicle trips detailed in one and eight hour periods, generated by the movement of mobile sources to and from the Parking Facility and/or Associated Parking Facility for the following time periods:

(i) First, fifth, and tenth years after completion of construction of each planned incremental phase of the Indirect Source and having a total parking capacity of more than 5000 parking spaces;

(ii) First and fifth years after completion of each planned incremental phase of the Indirect Source having a total parking capacity of 5000 or less parking spaces;

(D) A description of the availability and type of mass transit presently serving or projected to serve the proposed Indirect Source. This description shall only include mass transit operating within ¼ mile of the boundary of the Indirect Source;

(E) A description of the Indirect Source Emission Control Program if such program is necessary in order to be in compliance with the requirements of subsections 340-20-130(5)(a), (b) and (c);

(F) An estimate of the Average Daily Traffic, peak hour, and peak eight hour traffic volumes for all roads, streets, and arterials within ¼ mile of the Indirect Source and for all Freeways and Expressways within ½ mile of the nearest boundary of the Indirect Source for the time periods as stated in subsections 340-20-129(1)(a)(C)(i) and 340-20-129(1)(a)(C)(ii);

(G) An estimate of the gross emissions of carbon monoxide, lead, reactive hydrocarbons, and oxides of nitrogen based on the analysis performed in subsections 340-20-129(1)(a)(C) and 340-20-129(1)(a)(F);

(H) Measured or estimated carbon monoxide and lead concentrations at Reasonable Receptor and Exposure Sites. Measurements shall be made prior to construction and estimates shall be made for the first, fifth, and tenth years after the Indirect Source and Associated Parking are completed or fully operational. Such estimates shall be made for the average and peak operating conditions;

(I) Evidence of the compatibility of the Indirect Source with any adopted transportation plan for the area;

(J) An estimate of the additional residential, commercial, and industrial developments which may occur concurrent with or as the result of, the construction and use of the Indirect Source. This shall also include an air quality impact assessment of such development.

(b) *For Parking Facilities and other Indirect Sources with Associated Parking, other than Highway Sections and Airports, with planned construction of parking capacity for 150 to 1000 vehicles; the following information shall be submitted:*

(A) Items (A) through (E) of subsection 340-20-125(1)(a) and items (C) through (D) of subsection 340-20-129(1)(a). The Department will request item (E) of subsections 340-20-129(1) (a) where it is necessary in order to be in compliance with the requirements of subsections 340-20-130(5)(a), (b), and (c);

(B) Subsections 340-20-125(2) and (3) shall be applicable. Such additional information may include such items as (F) through (J) of subsection 340-20-129(1)(a).

(c) *For Airports, the following information shall be submitted:*

(A) Items (A) through (E) of subsection 340-20-125(1)(a);

(B) Subsections 340-20-125(2) and (3) shall be applicable;

(C) A map showing the topography of the area surrounding and including the site;

(D) Evidence of the compatibility of the Airport with any adopted Transportation Plan for the area;

(E) An estimate of the effect of the operation of the Airport on total vehicle miles travelled;

(F) Estimates of the effect of the operation and use of the Airport on traffic patterns, volumes, and flow in, on, or within one-fourth mile of the Airport;

(G) An estimate of the average and maximum number of Aircraft Operations per day by type of aircraft in the first, fifth, and tenth years after completion of the Airport;

(H) Expected passenger loadings in the first, fifth and tenth years after completion;

(I) Measured or estimated carbon monoxide and lead concentrations at Reasonable Receptor and Exposure Sites. Measurements shall be made prior to construction and estimates shall be made for the first, fifth, and tenth years after the Airport and Associated Parking are completed or fully operational. Such estimates shall be made for average and peak operating conditions;

(J) Alternative designs of the Airport, i.e., size, location, parking capacity, etc., which would minimize the adverse environmental impact of the Airport;

(K) An estimate of the additional residential, commercial, and industrial development which may occur

within 3 miles of the boundary of the new or modified Airport as the result of the construction and use of the Airport;

(L) An estimate of the area-wide air quality impact analysis for carbon monoxide, photochemical oxidants, nitrogen oxides, and lead particulate. This analysis would be based on the emissions projected to be emitted from mobile and stationary sources within the Airport and from mobile and stationary source growth within 3 miles of the boundary of the Airport. Projections should be made for the first, fifth, and tenth years after completion;

(M) A description of the availability and type or mass transit presently serving or projected to serve the proposed Airport. This description shall only include mass transit operating within ¼ mile of the boundary of the Airport.

(d) *For Highway Sections, the following information shall be submitted:*

(A) Items (A) through (C) of subsection 340-20-125(1)(a);

(B) Subsection 340-20-125(2) shall be applicable;

(C) A map showing the topography of the Highway Section and points of ingress and egress;

(D) The existing average and maximum daily traffic on the Highway Section proposed to be modified;

(E) An estimate of the maximum traffic levels for one and eight hour periods in the year in which the maximum air quality impact is projected and the first and last years the Highway Section is projected not to be in compliance with the requirements of subsections 340-20-130(5)(a), (b) and (c);

(F) An estimate of vehicle speeds for average and maximum traffic volumes for the year in which the maximum air quality impact is projected and the first and last years the Highway Section is projected not to be in compliance with the requirements of subsections 340-20-130(5)(a), (b) and (c);

(G) A description of the general features of the Highway Section and associated right-of-way;

(H) An analysis of the impact of the Highway Section on the development of mass transit and other modes of transportation such as bicycling;

(I) Alternative designs of the Highway Section, i.e., size, location, etc. which would minimize adverse environmental effects of the Highway Section;

(J) The compatibility of the Highway Section with an adopted comprehensive transportation plan for the area;

(K) An estimate of the additional residential, commercial, and industrial development which may occur as the result of the construction and use of the Highway Section, including an air quality assessment of such development;

(L) Estimates of the effect of the operation and use of the Indirect Source on major shifts in traffic patterns, volumes, and flow in, on, or within one-fourth mile of the Highway Section;

(M) An analysis of the area-wide air quality impact for carbon monoxide, photochemical oxidants, nitrogen oxides, and lead particulates for the year in which maximum air quality impact is projected and the first and last years the Highway subsection is projected not to be in compliance with the requirements of subsections 340-20-130(5)(a), (b), and (c). This analysis would be based on the change in total vehicle miles traveled in the area selected for analysis;

(N) The total air quality impact (carbon monoxide and lead) of maximum and average traffic volumes. This analysis would be based on the estimates of an appropriate diffusion model at Reasonable Receptor and Exposure Sites. Measurements shall be made prior to construction and estimates shall be made for the year in which maximum air quality impact is projected and the first and last years the Highway Section is projected not to be in compliance with the requirements of subsections 340-20-130(5)(a), (b), and (c);

(O) Where applicable and requested by the Department, a Department approved surveillance plan for motor vehicle related air contaminants.

Statutory Authority: ORS 468.020 and 468.220
Hist: Filed 12-5-74 as DEQ 81, Eff. 12-25-74
Amended 3-11-76 by DEQ 86, Eff. 4-11-76
Amended by DEQ 110(Temp),
Filed and Eff. 3-17-76 through 7-14-76
Amended by DEQ 118, Filed and Eff. 8-11-76

Issuance or Denial of Indirect Source Construction Permits

340-20-130 (1) Issuance of an Indirect Source Construction Permit shall not relieve the permittee from compliance with other applicable provisions of the Clean Air Act Implementation Plan for Oregon.

(2) Within 20 days after receipt of a complete permit application, the Department or Regional Authority having jurisdiction shall:

(a) Issue a 20 day notice and notify appropriate newspapers and any interested person(s) who has requested to receive such notices in each region in which the proposed Indirect Source is to be constructed of the opportunity for written public comment on the information submitted by the applicant, the Department's evaluation of the proposed project, the Department's proposed decision, and the Department's proposed construction permit where applicable.

(b) Make publicly available in at least one location in each Department region in which the proposed Indirect Source would be constructed, the information submitted by the applicant, the Department's evaluation of the proposed project, the Department's proposed decision, and the Department's proposed construction permit where applicable.

(3) Within 60 days of the receipt of a complete permit application, the Department or Regional Authority having jurisdiction shall act to either disapprove a permit application or approve it with possible conditions.

(4) Conditions of an Indirect Source Construction Permit may include, but not be limited to:

(a) An Indirect Source Emission Control Program where it is necessary in order to be in compliance with the requirements of subsections 340-20-130(5)(a), (b), and (c). The ISECP shall only contain control measures which have reasonably definable costs.

(b) Completion and submission of a Notice of Completion form prior to operation of the Indirect Source.

(5) An Indirect Source Construction Permit may be denied if:

(a) The Indirect Source will cause or contribute to a violation of the Clean Air Act Implementation Plan for Oregon.

(b) The Indirect Source will cause or contribute to a delay in the attainment of or cause or contribute to a violation of any state ambient air quality standard.

(c) The Indirect Source causes or contributes to any violation of any State Ambient Air Quality Standard by any other Indirect Source or system of Indirect Sources.

(d) The applicable requirements for an Indirect Source Construction Permit applications are not met.

(6) Any owner or operator of an Indirect Source operating without a permit required by this rule, or operating in violation of any of the conditions of an issued permit shall be subject to civil penalties and injunctions.

(7) Nothing in this section shall preclude a Regional Authority authorized under section 340-20-105 from setting the permit conditions for areas within its jurisdiction at levels more stringent than those detailed in sections 340-20-100 through 340-20-135.

(8) If the Department shall deny, revoke, or modify an Indirect Source Construction Permit, it shall issue an order setting forth its reasons in essential detail.

(9) An Indirect Source Construction Permit shall be applied for at least 90 days in advance of the anticipated start of construction.

Statutory Authority: ORS 468.020 and 468.320
Hist: Filed 12-5-74 as DEQ 81, Eff. 12-25-74
Amended 3-11-75 by DEQ 86, Eff. 4-11-75
Amended by DEQ 110(Temp),
Filed and Eff. 3-17-76 through 7-14-76
Amended by DEQ 115, Filed and Eff. 8-11-76

Permit Duration

340-20-135 (1) An Indirect Source Construction Permit issued by the Department or a Regional Authority having jurisdiction shall remain in effect until modified or revoked by the Department or such Regional Authority.

(2) The Department or Regional Authority having jurisdiction may revoke the permit of any Indirect Source operating in violation of the construction, modification, or operation conditions set forth in its permit.

(3) An approved permit may be conditioned to expire if construction or modification is not commenced within 18 months after receipt of the approved permit; and, in the case of a permit granted covering construction of modification in approved, planned incremental phases, a permit may be conditioned to expire as to any such phase as to which construction or modificaton is not commenced within 18 months of the time period stated in the initial permit for the commencing of construction of that phase. The Director may extend such time period upon a satisfactory showing by the permittee that an extension is justified.

Statutory Authority: ORS 468.020 and 468.320
Hist: Filed 12-5-74 as DEQ 81, Eff. 12-25-74
Amended by DEQ 110(Temp), Filed and Eff. 3-17-76 through 7-14-76
Amended by DEQ 115, Filed and Eff. 8-11-76

APPENDIX C.2: Example Oregon Short Form Permit Application

Department of Environmental Quality
Air Quality Division
Technical Services Section
1234 S. W. Morrison Street
Portland, Oregon 97205

SHORT FORM
INDIRECT SOURCE CONSTRUCTION PERMIT APPLICATION

Parking Lots 150 - 1000 Spaces

APPLICATION TO: ( ) Construct a New Indirect Source
( ) Modify an Existing Indirect Source

1. Project Information

Project Name______________________________

Address of Project______________________________
Street City State Zip

Nature of Business______________________________

Estimated Construction Date______________ No. of Parking Spaces______________.

2. Owner Information (Permit will be issued to owner)

Business Name______________________________

Mailing Address______________________________
Street City State Zip

Responsible Person to Contact________________ Title________________

Other Person Who May Be Contacted________________ Title________________

Corporation ( ) Partnership ( ) Individual ( ) Government Agency ( )

Signature of Applicant________________ Date________________

Title________________ Phone________________

This short form indirect source permit application is designed to expedite application processing. Please complete the information requested on the reverse side of this application and attach it to this completed application form. The Department will review the application to determine if air quality standards are jeopardized by the project. If additional information is required to complete the review, the Department must make this request within 15 days of receipt of this application. The decision to approve or deny the application will be made no later than 60 days after all information is received.

DEQ/AQ-358-12/76

INFORMATION REQUIRED TO COMPLETE INDIRECT SOURCE FORM APPLICATION.

1. A map showing the location of the site.
2. A description of the proposed and prior use of the site.
3. A site plan showing the location and quantity of Parking Spaces at the Indirect Source.
4. A ventilation plan if parking is subsurface or enclosed.
5. An estimate of the average and maximum daily vehicle trips detailed in one and eight hour periods, generated by the movement of mobile sources to and from the Parking Facility and/or Associated Parking Facility for the first and fifth years after completion of each planned incremental phase of the Indirect Source.
6. A description of the availability and type of mass transit recently serving or projected to serve the proposed Indirect Source. This description shall only include mass transit operating within 1/4 mile of the boundary of the Indirect Source.

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APPENDIX D: SUPPORTING MATERIAL FOR SEATTLE/TACOMA

D.1: PSAPCA "Indirect Carbon Monoxide Source Control" Regulation D-2

D.2: PSAPCA Clarification of Indirect Source Application and Review Procedures D-6

D.3: PSAPCA Basic Indirect Source Review Application D-11

D.4: PSAPCA Supplementary Information Form for Impacted Roadways D-13

D.5: PSAPCA Draft EIS on Repeal of the Indirect Carbon Monoxide Source Evaluation D-15

APPENDIX D.1: Puget Sound Air Pollution Control Agency "Indirect Carbon Monoxide Source Control" Regulation

ARTICLE 18

INDIRECT CARBON MONOXIDE

SOURCE CONTROL STANDARDS

SECTION 18.01 (a) PURPOSE

The purpose of this Article is to assure that proposed new or modified indirect sources of carbon monoxide do not interfere with attainment and maintenance of the air quality standards for carbon monoxide.

SECTION 18.01 (b) POLICY

In its administration of Article 18, the Puget Sound Air Pollution Control Agency will maintain a policy of cooperation and communication with local and regional planning authorities so that air quality decisions made to attain and maintain air quality standards will not improperly infringe upon the land use planning process.

SECTION 18.02 DEFINITIONS

(a) When used in Article 18:

(1) "Commence construction or modification" means to begin a continuous program to complete construction or modification of an indirect carbon monoxide source through initiation of physical changes at the site, including site clearing, grading, dredging, or landfilling. For the purposes of this definition, interruptions resulting from the acts of God, strikes, litigation or other matters beyond the control of the owner or operator, shall be disregarded in determining whether a construction or modification program is continuous.

(2) "Indirect source of carbon monoxide" or "Indirect CO source" means any building, structure, facility or installation the operation or use of which at the location proposed, may indirectly result in an increase in the ambient air in the concentration of carbon monoxide emitted by motor vehicles. Such sources shall include but not be limited to:

(i) Highways and roads;
(ii) Parking lots and garages;
(iii) Shopping centers;
(iv) Recreational centers and amusement parks;
(v) Sports stadiums;
(vi) Airports; and
(vii) Commerical or industrial developments.

(3) "Construction" means fabrication, erection, or installation of a new or modified indirect CO source.

(4) "Modification" means alteration, expansion or change of use of an existing indirect CO source, provided that the installation of additional parking spaces to existing parking facilities shall not constitute a modification unless the number of spaces in any single expansion, or the sum of 2 or more expansions, equals or exceeds 250.

(5) "Motor vehicle" means any operating vehicle or one capable of being operated which has its own self-contained sources of motive power, is designed for the transportation of people or property, and is of the type for which a license is required for operation on a highway.

(6) "Owner or operator" means any person who owns, leases, operates, controls, or supervises an indirect CO source.

(7) "Vehicle trip" means a trip by a single vehicle which begins or ends as a result of the operation or maintenance of an indirect CO source.

(b) The definitions contained in Section 1.07 apply to this Article unless specifically excepted.

SECTION 18.03 APPLICABILITY OF INDIRECT CO SOURCE PROVISIONS

(a) This article shall not apply to any indirect CO source for which an application to commence construction or modification of said source was filed under State Regulation WAC 18-24, and as of July 18, 1975, (1) said application was being processed provided such processing continues and results in the issuance of an order under Section 18.05 (e) (2) of Regulation 1; or (2) said application had been processed and the owner or operator was in possession of an order or final analysis allowing construction or modification to commence under WAC 18-24

(b) Except as stated in (a) above, this Article shall apply to all new or modified indirect CO sources in the Agency's jurisdiction which meet any one of the following criteria:

(1) Any new or modified indirect CO source which will provide 1000 or more parking spaces, except any facility used strictly for storage of vehicles to be offered for sale or resale;

(2) New highways which will be designed for a motor vehicle usage of 20,000 or more vehicles per day;

(3) Modified highways which will be designed to increase vehicle usage by 10,000 or more vehicles per day;

(4) New airports which will have 50,000 or more regularly scheduled operations per year or use by 1,600,000 passengers per year within 10 years after construction; or existing airports which will be modified to increase regularly scheduled operations by 50,000 or more per year or increase the number of passengers by 1,600,000 or more per year;

(5) Any new or modified indirect CO source in King, Pierce, or Snohomish Counties which will provide 250 or more parking spaces, except any facility used strictly for storage of vehicles to be offered for sale or resale;

(6) Any indirect CO source constructed or modified in increments which individually are not subject hereto, but which in sum bring the total project within any of the criteria of (1) through (5) above, except as modified by 18.02 (a) (4).

SECTION 18.04 FEE SCHEDULE

The owner or applicant shall pay applicable fees according to the following schedule:

Filing and Publishing	$ 75.00
Plan Review Fees	
250- 499 Parking Spaces	50.00
500- 999 Parking Spaces	100.00
1,000- 1,999 Parking Spaces	200.00
2,000- 3,000 Parking Spaces	500.00
Over 3,000 Parking Spaces	1,000.00
New and modified highways or roads	200.00

SECTION 18.05 REVIEW OF PROPOSED CONSTRUCTION OR MODIFICATION

(a) No owner or operator shall commence construction or modification of an indirect CO source subject to this article unless the review procedures of this section have been followed and an order of approval therefor issued by the Board or Control Officer is in effect.

(b) Owners or operators shall submit to the Agency an application for review setting forth:

(1) The general nature of the source;
(2) The location of the source;
(3) The number of parking spaces provided;
(4) An estimate of the maximum number of vehicle trips generated by the operation of the source for any 1-hour and for any 8-hour period;

(5) A description of the facilities for motor vehicle access, including parking, to and from the source when completed; and

(6) Such other explanatory information as the owner or operator may choose to include.

(c) At the time of submission of such application to the Agency, the owner or operator shall submit copies thereof to all local governments from which authorizations are required in order to construct or modify the indirect CO source.

(d) If, within fifteen (15) days of receipt of the notice, the Agency determines that further information is needed to evaluate the application, the Agency shall so notify the owner or operator and such owner or operator shall submit to the Agency such additional information as the Agency may require. This may include but shall not be limited to information on:

(1) The amounts of carbon monoxide emissions anticipated to be associated with the operation and maintenance of the proposed source;

(2) The design, construction, operation, and maintenance of the indirect CO source as it relates to associated motor vehicle usage;

(3) Existing air quality in the vicinity of the indirect CO source and an estimate of the impact of the proposed source on air quality.

(e) The agency shall, according to procedures on file at the Agency, review all information, and within thirty (30) days after all needed information has been submitted, provide an analysis of the effect of the operation or use of the indirect CO source on ambient air quality and a description of the Agency's proposed approval or disapproval.

(1) The analysis provided for in this subsection and the Agency's proposed action, together with the information submitted by the owner or operator, shall be made available to the public in at least one location in each county in which the indirect CO source is to be located. The availability of such materials shall be made known by notice published in a newspaper of general circulation in each county in which the indirect CO source is to be located. A copy of such notice shall be sent to the United States Environmental Protection Agency and appropriate state and local agencies. There shall be a thirty (30) day period after publication for written comment, on the air quality effects of the indirect CO source. Only written comments will be considered by the Agency.

(2) After consideration of comments and any additional information submitted during the comment period, and within forty-five (45) days after publication, the Agency shall issue an order of approval or an order of prevention of the construction or modification of the indirect CO source.

(i) An order of approval hereunder shall include such conditions of operation as the Agency finds reasonably necessary to attain or maintain the air quality standards for carbon monoxide as approved or promulgated by the United States Environmental Protection Agency.

(ii) An order of prevention hereunder shall be issued only upon finding by the Agency that, taking into consideration all reasonable conditions of operation which might be imposed, operation, maintenance, or use of the indirect CO source will prevent the attainment or maintenance of the air quality standard for carbon monoxide as approved or promulgated by the United States Environmental Protection Agency.

SECTION 18.06 DURATION OF APPROVAL ORDERS

Orders of approval issued under Section 18.05 shall be effective for twenty-four months after the date of their issuance. If more than twenty-four months have elapsed after an order for approval has been issued and construction or modification of an indirect CO source, pursuant to such an order, has not commenced, the owner or operator must submit sufficient additional information to enable the Agency to determine whether the initial approval should be extended. Review of such information shall be conducted as set forth in Section 18.05, including the notice and comment provisions thereof. No extension shall be effective for more than twenty-four months.

SECTION 18.07 GENERAL RESPONSIBILITIES

Issuance of an order of approval hereunder shall not affect the responsibility of the owner or operator to comply with all applicable portions of the Washington Clean Air Act and rules adopted thereunder and with applicable provision of the Washington

State Implementation Plan for national ambient air quality standards as approved or promulgated by the United States Environmental Protection Agency.

SECTION 18.08 INFORMATION IN ENVIRONMENTAL IMPACT STATEMENTS

To avoid duplication of effort, the Agency in carrying out the review provided for in Section 18.05, when possible, will utilize as a source of information, environmental impact statements prepared by other entities. However, nothing herein shall relieve the owner or operator of an indirect CO source of the requirement to submit a preliminary notice to the Agency and the Agency may require the submission of information additional to that contained in the environmental impact statement.

SECTION 18.09 SANCTIONS

Violations of this Article shall be subject to the sanctions provided in Article 3 of Regulation I. No order of approval issued hereunder shall be construed to authorize the violation of any ambient air quality standard by virtue of the operation or use of any indirect CO source.

APPENDIX D.2: Puget Sound Air Pollution Control Agency Clarification of Indirect Source Application and Review Procedures

PUGET SOUND AIR POLLUTION CONTROL AGENCY
INDIRECT CARBON MONOXIDE SOURCE
APPLICATION AND REVIEW PROCEDURES

D-7

OBJECTIVE:

To specify requirements for application and review of indirect carbon monoxide sources as provided for in Article 18, Regulation I, in King, Kitsap, Pierce and Snohomish Counties.

I. PURPOSE OF REVIEW
II. SOURCES WHICH MUST APPLY
III. INSTRUCTIONS FOR MAKING APPLICATION
IV. PROCEDURE FOR ANALYSIS OF IMPACT

PUGET SOUND AIR POLLUTION CONTROL AGENCY
410 West Harrison Street
Seattle, Washington 98119

September, 1975 (Revised)

I. PURPOSE OF REVIEW

Article 18, Regulation I, requires that any person who proposes to construct or modify an indirect source of carbon monoxide must file an application if the proposed facility is in one of the categories listed in "II. SOURCES WHICH MUST APPLY." (See below). This review will determine whether or not the carbon monoxide ambient air quality standards will be exceeded as a result of automobile activity associated with that project, or will delay the implementation of those standards.

If it is determined that the attainment or maintenance of the standards will be prevented by the construction or establishment of this source, the application is to be denied unless operating conditions can be specified to avoid such an occurrence.

II. SOURCES WHICH MUST APPLY

Filing requirements are based upon project location and size of highway or of associated parking facilities. Projects which provide parking or usage as follows are required to file:

Type of Facility	Facilities Required to File
Parking (King, Pierce or Snohomish Counties)	250 or more parking spaces
Parking (Kitsap County)	1,000 or more parking spaces
New Highways or Roads	20,000 or more average daily traffic (ADT)
Modified Highways or Roads	10,000 or more ADT increase
Airports (new)	50,000 or more scheduled operations, or 1,600,000 passengers, per year within 10 years after construction.
Airports (existing)	Increase of 50,000 or more scheduled operations or 1,600,000 passengers per year.

III. INSTRUCTIONS FOR MAKING APPLICATION

A. Prior Ambient Air Quality Monitoring

On-site or near-site continuous ambient air quality monitoring for carbon monoxide at designated locations with concurrent wind speed and direction measurements may be required by this Agency as a part of the application process. This will be done when the Agency determines that high carbon monoxide concentrations presently exist which, combined with the new source effects, would be likely to exceed the standard.

Monitoring should be performed by an independent laboratory or consultant using the procedures of the U.S.E.P.A. reference method for carbon monoxide, or some other procedure acceptable to this Agency. Normally, the monitoring time period requirement will not exceed 15-30 days unless the monitoring period does not include any peak hour traffic periods that coincide with stable atmospheric conditions (1).

Section B.1 (below) recommends prior contact with the Agency. It is recommended that applicants consult this Agency as soon as they have selected their project locations to determine whether monitoring will be required.

B. Application Forms

1. Prior Contact with Agency:

It is strongly recommended that anyone unfamiliar with the application process, as well as those having any questions regarding what information is necessary, contact this Agency prior to submitting the application.

2. Application for Review of an Indirect Source (Form 63-165):
Note: This is the basic form and should be completed, signed, and submitted with supplementary roadway information forms as needed (See 3 below).

(a) Question 5(a) and 5(b): A "trip" is either a vehicle arrival or a vehicle departure.

(b) Question 8(a) and 8(b): 8(a) may be completed by calculation or modeling; in such case, check "estimated." When "measured" has been checked, the procedures in "A: Prior Ambient Air Quality Monitoring" should have been followed. 8(b) requires calculation or modeling. Calculation (or modeling)

(Cont'd. next page)

III. INSTRUCTIONS FOR MAKING APPLICATION (Continued)

methods for use in 8(a) and 8(b) should conform to those listed in "Procedure for Analysis of Impact" or by some other method acceptable to this Agency.

3. "Supplementary Roadway Information Forms" (Form 63-165-1):

(a) Supplementary roadway forms should be completed for each of the following:

(i.) The highway (road or street) itself if it is the facility applied for.

(ii.) Any road, street or arterial abutting or intersecting with the facility applied for, that has or will have an ADT of 500 or more.

(iii.) Any arterial within 500 meters of the facility applied for, having an ADT of 1,000 or more.

(iv.) Any freeway within 1 km of the facility applied for. (Include all interchange ramps.)

(v.) Others if specially required by this Agency.

(b) The "Hour" column in block 4 should show the time of the beginning of the hourly or eight-hourly interval. This time will apply to both the current and projected traffic volumes unless the applicant indicates otherwise.

Important: The eight-hour traffic volumes on all supplementary roadway forms must be shown for concurrent times, even though this may result in some of these being slightly off-peak. The time period selected should be that of the source having the maximum impact. This is usually a freeway if nearby. Any applicant having questions on this should confer with this Agency.

(c) The speed shown is the average maintained speed. Note: When the traffic speeds are uniform in each direction, the volumes in these two directions may be summarized and shown (with the speed) in a single block; indicate "unidirectional".

(Cont'd. next page)

III. INSTRUCTIONS FOR MAKING APPLICATION (Continued)

4. Special Requirements for Airports

Applicants for airports shall supply all the information required in 2 and 3 (above) plus scheduled flight information and other information as required by this Agency. It is necessary that the Agency be contacted prior to making application.

5. Fee Schedule

The owner or applicant shall pay applicable fees according to the following schedule:

Filing and Publishing Fee	$75.00
Plan Review Fees:	
250-499 Parking Spaces	$50.00
500-999 Parking Spaces	$100.00
1,000- 1,999 Parking Spaces	$200.00
2,000 - 3,000 Parking Spaces	$500.00
Over 3,000 Parking Spaces	$1,000.00
New and modified highways or roads	$200.00

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IV. PROCEDURE FOR ANALYSIS OF IMPACT

The following procedure, while meant to explain the analysis methods of this Agency, may be used by applicants as an acceptable method for supplying the information required in questions 8(a) and (b) on form 65-165.

A. Basic Analysis Procedure

Analysis shall be made using emission rates for current and projected year (or years) of all line sources, and area sources (using area source simulation) to calculate pollutant concentrations at reasonable receptor points, by use of an acceptable model, on a worst case basis. A background concentration shall be added to the output concentrations. A calibration pro-

(Cont'd. next page)

cedure may be used. When sufficient data for valid calibration does not exist, the model will not be calibrated.

To avoid duplication of effort, this Agency may adopt the conclusions of an air quality study without making a computer run or other study to calculate ambient air concentrations when it has been determined by a thorough review that the inputs, the modeling technique, and the results submitted by the sponsor are reasonably the same that would be involved in a separate study by the Agency.

NOTE: Underlined words above are defined in the following definition section.

B. Definitions

When used in this document, the following definitions shall apply:

Acceptable Models:	EPA Hiway	Ref. (2)
	CAL Hiway	Ref. (3)
	Wash. State Dept. of Ecology Complex Source	Ref. (4), (5)

ADT - Average Daily Traffic. Total annual undirectional traffic/365.

Agency - The Puget Sound Air Pollution Control Agency.

Area Source Simulation: A system of handling parking or other areas as line sources in the acceptable (line source) models by means of concentrating the area's entire pollutant generation on an appropriate number of line segments. (The EPA Hiway model does this automatically when a pseudo cut-section technique is employed.)

Background Concentrations: The pollutant concentration which would remain if all the emissions from all the sources that are quantified for use in the modeling or calculation process were fully stopped. It should be determined by adequate monitoring, but might be calculated from statistical data. Where not known, a background concentration providing adequate safety should be used.

(Cont'd. next page)

IV. PROCEDURE FOR ANALYSIS OF IMPACT (Continued)

Calibration Procedure: A statistical procedure for adjusting the concentrations predicted by the model to actual site conditions. Procedures are specified in (6) and (7).

Emission Rate: The pollutant generation per unit of length per unit time as calculated by the Kircher-Masser Technique (8).

Line Sources: All source segments required to be submitted with the application on the Supplementary Roadway Information Forms (form 63-161-1) will be summated (with area sources) at a reasonable receptor point, or points, where the concentrations are likely to be at their highest.

Projected Year or Years: The year or years used for the air quality analysis following opening of the facility. The following should be used:

Streets and Highways: Year following opening and (a) Year 10 years following opening, or (b) year for which areawide traffic projections have been made for regional planning purposes.

Airports: The first, fifth and tenth years after opening.

Shopping Centers: The calendar year two years after opening.

Other Parking: Calendar year one year after opening.

Reasonable Receptor Points: Such locations where people might reasonably be expected for time periods consistent with the averaging time specified for the pollutant. For carbon monoxide, the critical time period is eight hours.

Worst Case Basis: A set of modeling inputs, compatible with gaussian diffusion models, which produce the highest expected pollutant concentration for the averaging period in the year under examination. This will usually necessitate the use of annual peak one and eight-hour traffic, Pasquill-Turner E or F stability, and 1.0 meter per second wind. Ref. (1)

REFERENCES

(1) Turner, Workbook of Atmospheric Dispersion Estimates, (A.P. 26) U.S. Environmental Protection Agency, Research Triangle Park, N. C., 1970, and subsequent.

(2) Zimmerman and Thompson, User's Guide for Hiway, A Highway Air Pollution Model, EPA-650/4 - 74 - 008. U. S. Environmental Protection Agency. Research Triangle Park, N. C. February, 1975.

(3) Beaton, Skog, Shirley and Ranzieri, Mathematical Approach to Estimating Highway Impact On Air Quality. California Division of Highways, Sacramento, California. July, 1972.

(4) Anon. Requirement and Instructions for Complex Source Review Application and Approval, Washington State Department of Ecology, Olympia, Washington, 1974.

(5) Fenske, Pearson and Frank, Indirect Source Review in Washington State. To be presented at the PNWIS-APCA Annual Meeting. Vancouver, British Columbia, November, 1975.

(6) Anon. Air Quality Display Model. Prepared for National Air Pollution Control Agency, Washington D.C. by TRW Systems Group, November, 1969.

(7) Busse and Zimmerman. User's Guide for the Climatological Dispersion Model. EPA-R4-73-024. U. S. Environmental Protection Agency, Research Triangle Park, N. C. December, 1973.

(8) Kircher and Masser: Draft Supplement No. 5 and Draft Attachment No. 1 to Compilation of Air Pollutant Emission Factors, AP - 42 2nd Ed. U.S. Environmental Protection Agency, Research Triangle Park, N.C. 1973. Draft Supplement and Attachment dated October, 1974.

APPENDIX D.3: Puget Sound Air Pollution Control Agency Basic Indirect Source Review Application

PUGET SOUND AIR POLLUTION CONTROL AGENCY

410 West Harrison Street, Seattle, Washington 98119 · (206) 344-7334

APPLICATION FOR REVIEW OF AN INDIRECT SOURCE

Special Instructions For Filing Can Be Found in
"Indirect Carbon Monoxide Source Application and Review Procedures"

1. Identification

a. Name of Indirect Source ____________________

b. Type of Facility ____________________

2. Location (include maps as required showing adjacent streets and area location).

Address: ____________________

NOTE: For Highways, Streets and Arterials · Omit Questions 3-5 Inclusive

3. Parking spaces: Total area ____________ Number spaces ____________

4. Attach drawing showing arrangement of parking spaces and indicate traffic flow.

5. Vehicle usage data within facility:

a. Maximum no. of trips per hour ____________ Time of Occurrence ____________

b. Maximum no. of trips per 8 hours ____________ Time of Occurrence ____________

c. Average vehicle time required to enter facility (in minutes):

____________ during 1-hour Peak ____________ during 8-hour Peak

d. Average vehicle time required to leave facility:

____________ during 1-hour Peak ____________ during 8-hour Peak

6. Facilities in King, Pierce, or Snohomish Counties must state the estimated impact of steps made to minimize vehicle miles traveled (public transit facilities, car pool plans, bicycle facilities). (Attach statement)

7. Traffic Flow Data: Complete Supplementary Roadway Information forms and attach.
(See Application and Review Procedures.)

8. Calculated impact (attach calculations)

a. Current maximum CO concentration

8-hour average ____________ ☐ estimated ☐ measured (check one)

1-hour average ____________ ☐ estimated ☐ measured (check one)

b. Projected maximum CO concentration for projected year

8-hour average ____________

1-hour average ____________

9. Certification:

a. I, the undersigned, do hereby certify that the information contained in this application and the accompanying forms, plans, and supplemental data described herein is, to the best of my knowledge, accurate and complete.

b. Signature: ____________ c. Date ____________

d. Type or print name ____________

e. Title ____________ f. Phone ____________

g. Mailing Address ____________

inue on Indirect Source Supplementary Roadway Information Forms as needed

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APPENDIX D.4: Puget Sound Air Pollution Control Agency Supplementary Information Form for Impacted Roadways

PUGET SOUND AIR POLLUTION CONTROL AGENCY
INDIRECT SOURCE SUPPLEMENTARY ROADWAY INFORMATION

Special Instructions for filing can be found in
"Indirect Carbon Monoxide Source Application and Review Procedures."

1. Street or highway title (including terminus) ____________________

____________________ from ____________________ to ____________________

2. Physical Features (show both present and projected if different):

Width in meters ____________________ curb to curb ☐ or between outer shoulders ☐

Width of median strip ____________________ meters (if applicable)

Number of lanes ____________________ Project design year 19 ______

3. Percent of total traffic that is heavy duty vehicle ("T" factor) *1

A. % Heavy duty vehicles - 1 hour traffic peak: Current *2 __________ %; Projected __________ %

B. % Heavy duty vehicles - 8 hour traffic peak: Current *2 __________ %; Projected __________ %

4.

TOTAL *3 DEMAND VOLUME (Design Data)	HOUR	CURRENT YEAR *2				PROJECTED YEAR 19 ____			
		DIRECTION 1		DIRECTION 2		DIRECTION 1		DIRECTION 2	
		VOLUME VPH	SPEED MPH	VOLUME VPH	SPEED MPH	VOLUME VPH	SPEED MPH	VOLUME VPH	SPEED MPH
A. One Hour Peak Volume									
B. (If Available, on a Per Hour Basis) 1 Hour									
2 Hour									
3 Hour									
4 Hour									
5 Hour									
6 Hour									
7 Hour									
8 Hour									
or Eight Hour Consecutive Peak Volume (Total volumes, average speed)									

5. Name of agency and person responsible for traffic data ____________________

*1 A motor vehicle either designated primarily for transportation of property and rated at more than 10,000 pounds gross vehicle weight (GVW) or designated primarily for transportation of persons and having a capacity of more than 12 persons. (EPA definition) or any dual rear-tired or larger motor vehicle.

*2 Data not needed for new highways.

*3 Specific lanes such as express, transit only, on-off ramps, etc. should be considered separately.

o. 63-165-1 (8/75)

APPENDIX D.5: Puget Sound Air Pollution Control Agency Environmental Impact Statement on Repeal of the Indirect Carbon Monoxide Source Evaluation

PROPOSED

REPEAL OF THE INDIRECT CARBON MONOXIDE SOURCE REGULATION

Draft Environmental Impact
Statement

Puget Sound Air Pollution Control
Agency

This Statement was prepared for Review
of Citizens, Citizen Groups and Government
Agencies, in compliance with the State
Environmental Policy Act of 1971 (RCW 43.21C)
and SEPA Guidelines (WAC 197-10)

August 1977

I. INTRODUCTION

A. Summary Sheet

(1) Sponsor/Lead Agency: Puget Sound Air Pollution Control Agency (PSAPCA)

(2) Description of Proposal: Repeal of PSAPCA Indirect Carbon Monoxide Source Control Standards (Article 18, PSAPCA Regulation I)

(3) Responsible Official: Arthur R. Dammkoehler, Air Pollution Control Officer, PSAPCA

(4) Author/Contact Person: James R. Pearson, PSAPCA

(5) Licenses Required: None

(6) E.I.S. Background Data Location: PSAPCA, 410 West Harrison Street, Seattle, Washington. Mailing Address: P.O. Box 9863, Seattle, Washington 98109.

(7) E.I.S. Copy Cost: $ 4.00

(8) Date of Issue of the Draft E.I.S. August 25, 1977

(9) Review and Comment Period Ends. Sept. 29, 1977

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C. DISTRIBUTION LIST

Federal

1. Environmental Protection Agency
2. Department of Health, Education and Welfare
3. Department of Transportation, Federal Highway Administration

State

1. Department of Ecology
2. Department of Social and Health Services
3. Department of Natural Resources
4. Department of Game
5. Department of Fisheries
6. State Highway Commission, Department of Highways
7. Department of Agriculture
8. Department of Commerce and Economic Development
9. State Energy Office
10. Utilities and Transportation Commission
11. Office of Community Development

Regional

1. Puget Sound Air Pollution Control Agency
   Board of Directors (Nine Members)
   Advisory Council (Five Members)
2. Puget Sound Council of Governments

Local

1. City of Seattle - Office of Policy Planning
2. Port of Tacoma
3. City of Seattle - Department of Community Development
4. Municipality of Metropolitan Seattle
5. Port of Seattle

C. DISTRIBUTION LIST (CONT.)

Local (Cont.)

6. City of Redmond Planning Department
7. City of Lynnwood Planning Department
8. City of Bellevue Planning Department
9. City of Bremerton Planning Department
10. City of Tacoma Planning Department
11. City of Kirkland Planning Department
12. City of Everett Planning Department
13. City of Kent Planning Department
14. City of Auburn Planning Department
15. City of Renton Planning Department
16. City of Tukwila Planning Department
17. City of Edmonds Planning Department
18. City of Bothell Planning Department
19. City of Mountlake Terrace Planning Department
20. City of Snohomish Planning Department
21. City of Issaquah
22. City of Poulsbo
23. City of Marysville
24. City of Enumclaw
25. City of Des Moines
26. City of Steilacoom
27. City of DuPont
28. City of Sumner
29. Port of Everett

County

1. Kitsap County Planning Department

C. DISTRIBUTION LIST (CONT.)

2. King County Department of Planning and Community Development
3. Pierce County Planning Department
4. Snohomish County Planning Department
5. Seattle-King County Health Department
6. Pierce County Health Department
7. Kitsap County Health Department
8. Snohomish County Health District

Libraries

1. Seattle Public Library
2. Tacoma Public Library
3. Renton Public Library
4. Auburn Public Library
5. Everett Public Library
6. Lynnwood Public Library
7. King County Public Library Branches:

    Bellevue
    Burien
    Kirkland
    Redmond
    Bothell
    Des Moines
    Federal Way
    Kent
    Mercer Island

8. Kitsap County Regional Library

Newspapers

1. Seattle Times
2. Seattle Post-Intelligencer
3. Seattle Daily Journal of Commerce
4. Tacoma News Tribune
5. Bellevue Journal-American
6. Everett Herald

Private Organizations and Others

1. Seattle Chamber of Commerce

C. DISTRIBUTION LIST (CONT.)

Private Organizations and Others (Cont.)

2. Association of Washington Business
3. Western Environmental Trade Association - Washington
4. League of Women Voters, King County
5. Air Quality Coalition
6. Washington Environmental Council
7. Washington Lung Association (Seattle)
8. Tacoma Chamber of Commerce
9. Bellevue Chamber of Commerce
10. International Association of Shopping Centers
11. Sierra Club
12. Craig V. Wentz, Attorney
13. Peter L. Buck, Attorney
14. William Kreis, Northwest Environmental Technology Laboratories
15. H. Alsid, Alsid, Snowden & Associates
16. Donna Lamb, John Graham Company
17. Errol Nelson, Wilsey and Ham, Incorporated
18. Joel Haggard, Attorney

D. Summary of Contents

1. Proposal and Purpose of Proposed Action

The Puget Sound Air Pollution Control Agency (PSAPCA) is proposing the repeal of its Indirect Carbon Monoxide Source Control Standard (Article 18, Regulation I). The purpose of the action is to eliminate an ineffective program which has additional problems of reliability and equity. The proposal to rescind the regulation must be weighed against its actually demonstrated and potential benefits.

Benefits from the program include the setting of operating conditions for projects for the purpose of reducing carbon monoxide (CO) concentrations, CO monitoring, some elimination of unnecessary parking, improvements in air quality analysis, and increased awareness of the CO problem in designers, planners and consultants.

Problems with the regulation center about its effectiveness. PSAPCA records show that the operating conditions that were established for indirect sources will be responsible for relatively low CO concentration reductions. The program was never expected to be other than a supplement to automobile tailpipe controls; requirements for these controls have been delayed several times. The techniques used to evaluate the future air quality impact of the sources lacks reliability and there are problems of equity associated with its administration.

2. Direct and Indirect Environmental Impacts - Summary

a. Air Quality Impact - Summary

Repeal of PSAPCA's Indirect Source Regulation would prevent the Agency from (1) requiring the fulfillment of conditions by the sponsor of an indirect CO source to assure maintenance of carbon monoxide air quality standards and to assist in attaining those standards, or (2) denying authority to a sponsor to construct an indirect source. Based upon the experience of this Agency, this probably means that one indirect source out of ten might produce increased carbon monoxide concentrations of one to two parts per million by volume (8-hour average) on a couple of days per year. A possibility of much lower probability (on the order of one in one hundred) is the chance that an indirect source that would have been disapproved by PSAPCA would be constructed and cause a two to ten ppm local increase in the maximum annual 8-hour CO concentration during a critical future year. Increases in CO concentrations would be associated with much lower volumetric increases in hydrocarbon and nitrogen oxides emissions and in the emission of very low amounts of particulate matter.

b. Water Pollution (Runoff/Absorption; Surface Water Movement) - Summary

The possibility of increased runoff through the inability of PSAPCA to disapprove indirect sources and, hence, to prevent the paving of surface areas, is very slight, indeed. Many indirect source sites include pre-existing paving or building; experience has shown that the regulation did not reduce the paved area proposed by the sponsors; finally, the Indirect Source Regulation has been responsible for requiring some increase in pavement for facilitating access to the sites. There is an equally slight possibility of impact due to surface stream changes or relocations.

c. Flora - Agricultural Crops - Summary

An extremely slight possibility exists that farm land, which would have been saved by the disapproval or control of an indirect source, could be lost through repeal of the regulation, for reasons identical to those outlined in the water pollution summary above.

d. Land Use - Summary

Adverse impact can occur from the repeal of a land use constraint only if there is no other constraining regulation. The Indirect Source Regulation is only one of many land use constraints (e.g. SEPA), and is moreover, not uniformly applicable or equitable. No adverse impact is foreseen.

e. Transportation/Circulation - Summary

Impacts on transportation/circulation are seen as follows: Slight increases in traffic flow and minor increases in number of parking spaces provided, for a small number of indirect sources.

f. Public Services (Other Governmental Services) - Summary

Slight impact may be felt by governmental jurisdictions that have reduced the scope and amount of detail in the air quality impact coverage in impact statements because of pending applications under the PSAPCA Indirect CO Source Regulation. Some impact may be placed on jurisdictions who have relied upon the program to assist in making decisions, to answer public questions about air impacts, and to alleviate public concern.

g. Human Health - Summary

If the repeal of the regulation has any health effect at all, the most likely consequences would stem from equilibrium carboxyhemoglobin (COHb) increases on the order of 0.2% to 0.3% on a couple of days, in a critical future year, in the blood of exposed individuals near indirect source sites. There is an extremely small likelihood that COHb concentrations could increase 2%, as a result of the repeal.

3. Alternatives Considered

The alternatives to the proposed action include: (1) the no-change alternative (continuing the existing program), (2) the modification of the regulation to eliminate the issuing of Orders of Approval and Orders of Disapproval, and (3) modification of the regulation so as to make a hearing before the Board of Directors of the Puget Sound Air Pollution Control Agency constitute the basis for approval or disapproval of proposed indirect sources.

(1) represents no change in environmental impacts. Very minor impacts can occur from administering the present program (i.e. effects of additional paving required by the Agency for improved access to an indirect source.) (2) is a removal of all PSAPCA regulatory constraints against indirect source construction and hence the impacts are identical to those of the proposed action (repeal). (3) The environmental impacts would probably be the same as those for the "no-change" alternative, i.e. no change in impacts over those presently occurring.

4. Mitigating Measures

PSAPCA will encourage full disclosure of air quality impacts of indirect sources in EIS, through use of a state-of-the art air quality analysis and will suggest changes to any design features that would prevent maintenance or attainment of CO standards.

Other Regulations are available for challenging indirect sources that would cause signigicant air quality impact. These are NEPA, SEPA, the Federal Clean Air Act and the Federal Aid Highway Act.

5. Adverse Environmental Impacts from the Proposal

Because the potential environmental impacts are slight, and are capable of being adequately mitigated, it is not believed that significant adverse environmental impacts will result from the proposed action.

II. DESCRIPTION OF PROPOSAL

A. Proposed Action

PSAPCA is proposing the repeal of its Indirect Carbon Monoxide Source Control Standard (Article 18, Regulation I). This action, or possibly selection of an alternative action, would occur through Resolution of the Board of Directors of the Agency in a public hearing. At the time of preparation of this statement, it appears that the hearing will occur prior to the end of 1977. The time and place of the hearing will be disseminated through a published notice, by direct mail, and by release to media.

The indirect source regulation has been in effect in King, Kitsap, Pierce and Snohomish Counties and the resulting action will be applicable to these counties, although no sources have as yet (May 31, 1977) made application from Kitsap County.

There are no physical or engineering aspects to the proposal.

B. Origin and Purpose of the Indirect CO Source Regulation

The concept of the Indirect Source Regulation (sometimes called Complex Source Regulation) for control of auto-generated air pollutants resulting indirectly from the construction of roads, airports and shopping centers and other such facilities, was orginated by the United States Environmental Protection Agency (EPA) as a result of a federal court decision[1] and was made a requirement for all state required plans for implementation of the national ambient air quality standards.

The Washington State Complex Source Regulation was made effective by the State Department of Ecology (DOE) in August, 1974, as a modification to its regulation WAC 18-24 for control of auto emissions. The program was delegated by DOE to PSAPCA for administration in King, Kitsap, Pierce and Snohomish Counties.

Following the December, 1974, announcement by EPA Administrator, Russell Train, of a delay in implementation of the United States Federal Indirect Source Regulation, DOE amended its Complex Source Regulation in February, 1975, so as to preclude the denial of authority to construct an indirect source. The reviewing authorities were to continue to make the air quality analysis, with publication of a notice of the availability of the results. The complete repeal of the regulation followed on June 18, 1975.

The present PSAPCA Indirect Source Regulation was adopted June 17, 1975, and revised in September, 1975, and November, 1976, and is similar in structure and scope to the repealed DOE regulation. Table I presents a tabulation of actions and conditions under the PSAPCA regulation.

C. Reasons for Proposed Repeal of the Indirect Source Regulation

Before listing PSAPCA's reasons for proposing repeal, which are in the paragraphs which follow, the benefits that have been accomplished by the regulation should be listed. These include the establishment of operating conditions for proposed projects for the purpose of mitigating carbon monoxide impact. In addition, the regulation has been responsible for CO monitoring and meteorological measurements that would not have been made otherwise. A condition for the approval of one facility required continuous air quality monitoring at two sites for a period of three years. The regulation has caused the amount of parking for several new projects to be scaled down, which is beneficial, provided unnecessary amounts of parking are eliminated. Finally, the indirect source review process has helped induce an awareness of the CO problem in designers, planners and consultants, and has been responsible for certain innovations and improvements in air quality analysis.

Effectiveness: The indirect CO Source Regulation attempts to prevent carbon monoxide concentrations that would violate air quality standards at some time in the future. As a result, its effectiveness is not easily measured. With programs like PSAPCA's, however, its effectiveness can be judged by the size and amount of the high CO concentrations that were theoretically prevented. It has been PSAPCA's experience that the specification of operating conditions as requirements for indirect source approval (measures which would reduce auto traffic or improve traffic flow) do not result in much in the way of CO concentration reductions. PSAPCA records show that conditions specified for two indirect sources would in theory reduce CO high annual concentrations up to about two parts per million (ppm) during two eight hour periods during future years. These were the most significant results that the Agency was able to achieve from the analysis and review of 57 proposed indirect sources under the state complex source law and under its own regulation.

Another way of assessing indirect source effectiveness is to consider the expectations of those who conceived the idea. Indirect source regulations (and other so-called "transportation control strategies" for mobile source air pollution were formulated as supplements to the principal control effort which was acknowledged from the beginning to need to rest on auto emission controls that reduce tailpipe emissions. The parking management transportation control for carbon monoxide standard attainment in Seattle was expected to have no measurable effectiveness in reducing CO generation; the principal reductions in generation were expected to come from mechanical features of the vehicles themselves[2].

A prerequisite for effectiveness is a reliable measuring technique. No program can be truly effective if it approves indirect sources that should be rejected and vice versa. This question is discussed in the following paragraphs.

Reliability of Analysis Technique: The determination of whether to approve, conditionally approve or disapprove a proposed indirect CO source is based on the results of objective line source atmospheric dispersion modeling, a procedure which has been widely described elsewhere[3, 4, 5]. Basically, the procedure involves the input of the sponsor's estimate of the highest annual traffic in a critical year following opening of the source and a postulated "worst-case" wind and atmospheric stability condition into a mathematical (usually computer) model.

The analysis technique is unreliable for two reasons. First, the dispersion modeling process for highway and parking lot carbon monoxide emissions has a fairly large possibility of error, even when the model input parameters (traffic volume and speed, wind speed and direction, and atmospheric stability) are actually known. This statement is borne out by analysis of a number of studies which compare CO predictions made by the modeling process with the actual observations[4, 6, 7, 8]. Second, an additional source of error is introduced into the process because of the need to make estimates of coincident worst case traffic and atmospheric conditions for some future year after the construction of the indirect source. These estimates must be accurate in order to accurately predict the carbon monoxide concentrations, since errors can significantly change the resultant predictions. The indirect source regulation requires a rigid application of an analysis technique which involves the prediction of short term carbon monoxide concentrations several years into the future. Because it is difficult to foretell the future, the reliability of the analysis technique is such that it may either (1) offer little or no protection to the public and generate a false sense of security when the predicted concentrations are low (model underpredicting) or (2) overpredict to the extent that it verges on being an infringement of the property rights of the proponent.

Equity: It is a well known fact that extensions in meeting Federal auto emission standards have been granted to manufacturers; at this writing, the carbon monoxide standard originally scheduled for 1975 seems destined to be implemented in 1980. A fact that is not so well known is that emission-testing programs of automobiles in actual use in several U.S. cities have shown that most control-equipped motor vehicles are not meeting Federal standards, and the most pronounced failure has been registered with carbon monoxide emissions from catalytically-controlled cars[9].

The result of coupling a flexible emission allowance for motor vehicles to fixed ambient air quality standards and rigid indirect source review procedures produces effects that are borne largely by the proponents of indirect sources. This is because the modeling analysis technique used to review indirect sources must be based upon estimates of future auto emissions, and the progressive incorporation of the poor results of the testing programs and continuing extensions of the emission control delays into the modeling process makes it more and more necessary to impose stringent operating conditions on the facility to maintain the carbon monoxide ambient air quality standard. The sponsoring entity, whether public or private, is obliged to fulfill conditions that can require large capital outlays or to reduce the size of the facility. It could be argued that the imposition of tough cost burdens on indirect source proponents is a reasonable "cost of doing business" and a partial internalization of the costs resulting from the impact of the source on the community. But to increasingly shift the burden from one type of business (auto manufacturing) to another business (the indirect source) is inequitable.

The indirect source regulation is also inequitable in another way. Because of the wording of the regulation, sources that increase concentrations in areas that are not presently violating standards may be disapproved, but sources in zones which are now violating standards must be conditionally approved.

III. EXISTING ENVIRONMENTAL CONDITIONS

A. The Indirect Source Regulation and its Administration

A full text of the present Indirect Source Regulation can be found in Appendix A, and its administration is described in reference[10].

In keeping with its Indirect Source Regulation, PSAPCA utilizes a review procedure which determines whether or not the proposed Indirect Carbon Monoxide source will cause the air quality standard for CO to be exceeded at reasonable receptor points. The following actions are taken depending on the results of the predictive modeling:

No Standard Violations Predicted: PSAPCA publishes notice of intent to approve. Unless substantive contrary public comment is received, final approval follows.

Proposed Source Will Cause a Standard Violation: Proponent is notified and conditions of operation which would prevent violations are developed. Then the Agency proceeds as described above. If operating conditions cannot be developed, the proposed source must be disapproved. This has not happened to date.

Proposed Source Will Exacerbate Existing CO Standard Violations: Because of the wording of the regulation, the source, which will not cause the violation nor prevent the eventual attainment of it, cannot be disapproved but conditions of operation in (at least) partial mitigation must be developed. Publication of notice of intent to approve, receipt of public comment, and final approval, are succeeding steps.

B. Summary of Actions Taken Under the Indirect Source Regulation

Table I presents a summary of actions taken as of May 31, 1977, under PSAPCA's regulation.

C. Current Environmental Conditions

1. Air Quality

Current carbon monoxide concentrations in the PSAPCA jurisdiction are within applicable standards with the exception of the following permanent Department of Ecology stations (first quarter 1977): Seattle: 2nd & University, Fire Station # 10, University District Cycle Shop, B.F. Day School, Department of Social & Health, Veterans Action Center, and James Street; Tacoma: Hess Building.

TABLE I

PSAPCA INDIRECT SOURCE REGULATION - APPLICATIONS AND ACTIONS

AS OF MAY 31, 1977

Type of Indirect Source	No. Parking Spaces (Average Daily Traffic)	Final Action*	Operating Conditions Specified*
Apartment Complex	312	A	-
Regional Shopping Center	4,500	CA	B,C,D,E
Employee Parking Lot	1,600	A	
Transit Operating Base	485	A	
Industrial Park	900	A	
Park/Ride Facility	740	A	
Park/Ride Facility	600	A	
Convenience Shopping Center	617	CA	C
Park/Ride Facility	940	A	
Chapel/Bible College	617	A	
Park/Ride Facility	350	A	
Park/Ride Facility	350	A	
Park/Ride Facility	435	A	
Community Shopping Center	832	A	
Apartment Complex	260	A	
Bulk Mail Facility	276	A	
Church Assembly Hall	504	A	
Convenience Shopping Center	729	A	
Airport Expansion	357	A	
Neighborhood Shopping Center	453	A	
Business Park	1,090	A	
Transit Operating Base	477	A	
Transit Operating Base	450	CA	F,G
Regional Shopping Center	6,688	A	
Motor Inn Addition	937	A	
Neighborhood Shopping Center	732	A	
Neighborhood Shopping Center	460	A	
Park/Ride Facility	575	A	
Convenience Shopping Center	526	A	
Regional Shop. Cntr. Expansion	7,776	A	F,H,I
Office Building	704	A	
Transit Operating Base	480	A	

*See letter designation at end of Table.

TABLE I (CONT.)

Type of Indirect Source	No. Parking Spaces (Average Daily Traffic)	Final Action*	Operating Conditions Specified*
Transit Operating Base	480	A	
Transit Operating Base	480	A	
Transit Operating Base	480	A	
Office Building	440	A	
Freeway	(90,225)	-	(Awaiting Final EIS)

---

*See letter designation code.

LETTER DESIGNATION CODE

A = Approval

CA = Conditional Approval

B = Make Essential Road Improvements

C = Build Additional Street for Access and Traffic Bypass

D = Site Traffic Plan to Reduce CO Generation

E = Provide Ambient Air Quality Monitoring at Two Sites for Three-Year Period

F = Provide Rechannelization and Traffic Signal Installation

G = Operate Shuttle Service Between Operating Bases

H = Change Parking Stalls to Minimize Disruption

I = Revise Bus Circulation Plans and Passenger Loading Areas

2. Other Environmental Conditions

Discussion of possible environmental impacts to Water Quality, Agricultural Crops, Land Use, Transportation/Circulation/Parking, Public Services, and Human Health are to be found in IV.B through IV.H. Applicable existing environmental conditions are included.

IV. ENVIRONMENTAL IMPACT OF PROPOSAL

A. Air Quality Impact

There are no certain adverse air quality impacts that would result from the repeal of the PSAPCA Indirect Source Regulation. Potential impacts can be estimated by looking at (1) the impacts that may actually have been prevented by the regulation and (2) impacts that theoretically might have been prevented by the regulation. PSAPCA experience with indirect source review includes a total of 57 sources reviewed under its regulation and under the previous State Regulation and it seems reasonable to assign the highest weighting to actual experience rather than to long-range possibilities.

Based upon PSAPCA experience in reviewing actual indirect sources, the air quality impact, which could have resulted had there been no indirect source regulation, would have been limited to the vicinity of two regional shopping centers, one convenience shopping center, and one transit operating base. Those sources were granted "conditional" approvals, subject to conditions which should succeed in reducing predicted worst annual 8-hour carbon monoxide concentrations by amounts ranging from one-half to two parts per million by volume. The conditions that were applied, which are predicted to effect these reductions, include widening of shopping center access streets and adjacent streets and a provision of streets for additional access and bypass of through traffic, signalization, revision of transit circulation plans and revision of transit bus entrance and exit lanes and certain other measures which in theory are less effective than the foregoing. It cannot be categorically stated that the foregoing conditions that were imposed by PSAPCA would not have occurred eventually had there been no regulation. The application of the conditions may merely have served to accelerate the provision of the traffic improvements. The predicted reductions which would result from the conditions are,of course, subject to the error inherent in all long-range, short-term air quality predictions, which are made in connection with the carbon monoxide ambient air quality standard. Construction has commenced on approximately half of the sources mentioned in this paragraph; if a source is not built, then no emissions are prevented and no resulting concentrations are reduced. However, past experience with PSAPCA's regulation shows that the potential impacts resulting from the repeal of that regulation can be described as the increase of the worst annual carbon monoxide concentrations by one to two parts per million on a small percentage (say 10%) of the proposed indirect sources. These concentrations include secondary (induced growth) impact.

As stated above, potential air quality impact can also be viewed in terms of theoretical possibilities. In the theoretically possible event that a major freeway or regional shopping center were to be denied authority to construct solely on the basis of the indirect source regulation, then at least two 8-hour concentrations of carbon monoxide exceeding nine parts per million would theoretically be prevented. Carbon monoxide background concentrations due to other sources would, of course, not be controlled and might, in fact, approach or exceed air quality standard limits due to our inability to regulate fragmented commercial development. The likelihood of the actual occurrence of such denials in the future is not possible to assess, but is believed to be quite small (possibly on the order of one in one hundred).

The entire discussion in the Air Quality Impact Section has centered on carbon monoxide, since it is a convenient index of automotive air pollution, and is the pollutant evaluated by the regulation. An increase in carbon monoxide generation would be associated with lesser increases in hydrocarbons, nitrogen oxides and suspended particulates.

B. Water Pollution (Runoff/Absorption)

The paving of land surface areas and of increased storm water runoff results from the construction of most indirect sources. If an indirect source, proposed for installation on natural earth surface, is denied authority to construct, or is required to reduce its paved surface area, the resulting runoff would be reduced. The repeal of the indirect source regulation would prevent PSAPCA from denying a sponsor the authority to construct an indirect source. The inability to make such a denial could, in theory, result in increased runoff and increased water pollution. For an actual impact to occur, we have to assume (1) that the surface was largely unpaved prior to the new construction; (2) that the land would have remained in its natural state; and (3) that a denial of authority to construct the indirect source would have been made, had there been a regulation. We believe that the possibility of concidence of these events is very small and, thus, that there is very little possibility of an adverse water pollution impact from the repeal of the Indirect Source Regulation. Moreover, it should also be pointed out that the indirect source regulation has, in some instances, increased the amount of paved surface area. Conditions for approval of indirect sources have included widening of access streets, provision of new access roads, etc., to facilitate movement of traffic and, thus, reduce generation of carbon monoxide. For such cases, then, the repeal would reduce potential runoff.

Finally, in dealing with potential impacts, it can be instructive to consider what has happened to applications actually reviewed in the past. PSAPCA's experience with 37 indirect sources under article 18, and with 20 sources under the State Complex Source Law, has shown that the surface area of indirect sources has never been reduced by the regulations below the amount of paving originally proposed by the sponsors. This is true even though the number of parking spaces has been required to be reduced. We do not know, of course, how many developments have reduced the amount of striped parking to put them below the 250 space review threshold; there have been some, but probably not many.

C. Water Pollution (Surface Water Movement)

A very infrequent effect associated with construction of indirect sources is the alteration/shifting of surface creeks and streams to permit use of a larger area or to consolidate streams for passage under a highway. Denial of authority to construct an indirect source might prevent such a tampering with the natural flow of surface waters and, correspondingly, the repeal of the regulation would permit surface channel changes, and the resulting impact. But we believe that the potential impact here to be even less than the potential water runoff impact (IV.B above). Only one known surface stream channel change was made in connection with an indirect or complex source, and it was permitted under the State regulation, although the whole project was delayed by a State agency concerned with the change.

D. Flora - Agricultural Crops

A discussion similar in structure to that found under Water Pollution Runoff/Absorption above is possible for flora - agricultural crops, since any natural, unpaved surface area might be suitable to growing of crops, and its use as part of an indirect source would terminate its agricultural use. The probability of conservation of farmland as a result of denial of authority to construct an indirect source is, we believe, even more remote than the prevention of increased surface runoff because of such denial. A review of the applications submitted under PSAPCA's Indirect Source Regulation shows that no indirect source or adjacent access road was constructed on land being farmed.

E. Land Use

Opponents of indirect source regulations have frequently made the charge that such regulations are an unauthorized form of land use planning or preemption. At the same time, some land use planners have looked on environmental regulations as growth controls[11]. Consequently, it should not be superfluous to make an examination of the degree to which land use would or would not be affected by the repeal of the indirect source regulation.

Although the term "land use," as an environmental element in the SEPA Guidelines, could be interpreted so broadly as to have little or no meaning, it will be assumed for the purpose of this discussion that land use control and land use planning are the aspects which should be considered. The indirect source review process has provided a case-by-case, localized air quality impact review of new projects on a first-come, first-served basis. This type of single-purpose review cannot be properly termed land use planning, though it is a form of land use decision making.

The question of whether the indirect source regulation provides a vital and necessary constraint on land use depends upon whether or not the control is unique, uniform and equitable, and reasonably precise. It is shown in Section II. C., in this statement, that the indirect source regulation does not meet the foregoing tests. Consequently, its repeal would not result in adverse "land use" impact.

F. Transportation/Circulation (Including Parking)

The only chance that the indirect source regulation has for meeting its purpose of preventing or reducing the generation of carbon monoxide is by somehow affecting the movement of motor vehicles. It attempts to do so in those instances where an analysis shows that the carbon monoxide ambient air quality standard requires attainment, or that the project in question will endanger the maintenance of that standard. The present regulation is structured so that it may be used to affect all motor vehicle traffic associated with a facility through the denial of the authority to construct new facilities. PSAPCA has not had to disapprove the plans for construction or modification of indirect sources to date, but in a small number of cases the Agency has approved plans through the addition of conditions of operation. We have estimated that these conditions would reduce maximum air quality impact of the proposals by as much as two parts per million CO averaged over eight hours (see IV.A, Air Quality Impact).

To effect a reduction in carbon monoxide concentrations requires either the reduction of vehicle miles traveled, an increase in the average speed of travel of the same number of vehicles, or a shifting of vehicles to alternate arterials so as to optimize vehicular dispersion, and reduce the spatial concentration of motor vehicles. A two ppm reduction was effected by setting a condition for approval of a shopping center which would provide a through bypass for traffic around the center, which, in turn, would shift 5,200 vehicles per eight hours a distance of 400 meters from one critically-affected street, and 2,200 vehicles per eight hours a distance of 600 meters from another street. By this action, the generation was shifted away, so as to reduce concentrations at "hot spots". If the indirect source regulation is repealed, then the sponsors will not be required to provide the bypass peripheral road and the traffic impact will theoretically result. A small percentage of future shopping centers, highways, office parks, etc., may experience more in the way of traffic problems than they would have had there been a regulation.

Adverse traffic impacts are not expected because of these factors: (1) traffic engineering measures by the affected locality for the purpose of facilitating traffic flow, (2) sponsor initiative in scheduling events at off-peak times, and (3) the capacity of a large part of the driving public to identify potential congestion zones and avoid them.

The regulation has not directly limited the amount of parking available at indirect sources. The excessive cruising, idling, etc., produced by cars in search of scarce parking can have a counter-productive effect on CO control. Parking limitations can be futile; usually the facility itself is the magnet, not the parking lot. There should be little effect on parking availability if the regulation is repealed.

G. Public Services (Other Governmental Services)

The repeal of the Indirect Source Regulation would require the expenditure of additional funds by some lead agencies in Environmental Impact Statement preparation. In previous statements, these agencies have covered the air quality impact of proposed indirect sources with a clause to the effect that "the sponsor will be required to obtain a permit from the Puget Sound Air Pollution Control Agency to assure that the facility will not prevent maintenance or attainment of the CO standard, which has enabled them to reduce the scope of the section. Countering this is the fact there is often some duplication of studies, which will be eliminated. Some sponsors have provided air quality studies for the EIS and also paid for air quality monitoring in connection with the Indirect Source Application.

Some jurisdictions have relied on a pending indirect source review to assist in making decisions, to answer questions from the public about the air impact of developments, and to alleviate public concern.

It is not expected that the repeal would change overall, indirect costs of government to the general public, since the possible increased costs to other agencies should be balanced by reductions in costs to PSAPCA. It, in turn, will be able to concentrate its efforts on other high priorities in air pollution control.

H. Human Health

Human health is the only reason for CO controls, but it would be beyond the scope of this statement to attempt to present a full-scale discussion of the health effects of carbon monoxide. This statement will simply summarize the health effects as listed in one of the better known references on the subject[12] and attempt to apply them to the proposed repeal action.

The following equilibrium concentrations of carboxyHemoglobin (COHb) have been observed in nonsmokers after eight to twelve hours exposure to CO, in the concentration listed: 30 ppm, 5%; 20 ppm, 3.7%, and 10 ppm, 2%. At about 3% COHb, significant changes in the relative brightness threshold have been observed, and, at higher levels, impairment of the oxidative metabolism of the myocardium has been observed in individuals with emphysema and cornary heart disease.

The governing carbon monoxide ambient air quality standard (9 ppm, not to be exceeded more than once per year) is set at a level which attempts to prevent the occurrence of any of the above-listed effects.

The indirect source regulation is most effective in those zones in which the standard is not being exceeded (see Section II.C., Reasons for the Proposed Action). It is conceivable that to protect such a zone, a denial of authority to construct could be served on an indirect source which would have increased the high eight-hour CO concentration from below 9 ppm to 25 ppm; such high concentrations have been observed in this region. However, of 57 indirect and complex sources reviewed by this Agency, none have been forecast to raise concentrations in attainment zones (areas not exceeding the CO standard) to more than 11 ppm. In non-attainment zones (areas where CO standards are being exceeded) the highest forecast concentration slightly exceeded 17 ppm for eight hours. Under the PSAPCA regulation, applications for indirect sources in non-attainment zones cannot be denied, so that the most that can be done in such zones is to "condition" the approval, and it is difficult to obtain a reduction forecast of more than one to two parts per million by imposing conditions. The general public would, therefore, continue to experience the adverse health effects from exposure to such areas.

PSAPCA believes that the probable health effects impact of the repeal would be as follows: A very low possibility (say one in one hundred) of carbon monoxide health effects resulting from concentrations exceeding the eight-hour standard by ten ppm on a couple of days per year, ranging down to a moderate probability of health effects resulting from concentrations exceeding the eight-hour standard by one to two ppm on a couple of days per year. If this estimate is correct, then the most probable COHb increases (if there are any at all) would range from (at equilibrium) 0.2% to 0.3% on a couple of days in a critical year in the future, with an extremely small possibility of an increase of 2%. The significance depends on the baseline level, whether or not the exposed individual is a smoker, has a heart problem, and other factors.

V. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The effectiveness of the PSAPCA Indirect Source Regulation has been covered elsewhere in this statement (see II.C, Reasons for Repeal of the Indirect CO Source Regulation, Effectiveness). It is precisely the lack of effectiveness of the regulation that mitigates the potential impact of its repeal. For the same reasons, the repeal of the regulation should not result in any significant increase in short-term uses of the environment that would inhibit long-term productivity.

The short term use/long term productivity question is not applicable to renewable resources, and it has been shown in the Environmental Impact Section (IV) that Land Use in general and agriculture in particular, which are probably the only non-renewable resources involved, would not be affected by the change.

VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

This discussion category is perhaps applicable to the Indirect CO Source Regulation itself and to land use. The repeal of a regulation, like its enactment, is not an irreversible action since the responsible legislative body may always reenact it if a need has been shown.

Considering commitments of the land resource, which is generally always involved with an indirect source, virtually no change in land use is foreseen as a result of the regulation (see Environmental Impact of Proposal, IV.E., Land Use).

VII. ADVERSE ENVIRONMENTAL IMPACTS WHICH CAN BE MITIGATED

The section in this statement dealing with environmental impacts (Section IV) has indicated possible minor impacts in the areas of Air Quality, Transportation and Human Health stemming from the repeal of the Indirect Source Regulation. PSAPCA believes that these impacts can be fully mitigated.

In making its routine responses to draft environmental impact statements or to declarations of non-significance to new projects which would have been classed as indirect sources, PSAPCA will recommend that lead agencies make an appropriate air quality analysis and suggest that potential air quality effects be mitigated. Possible measures for mitigation can be outlined in the response.

Mitigation can also come about by other means. Projects with adverse air quality impact or other adverse impacts can be challenged through suits under the State or National Environmental Policy Acts (SEPA or NEPA) or under the Federal Clean Air Act. Indirect sources which would have been denied authority to construct under PSAPCA's regulation may be in violation of the State Implementation Plan for implementation of the ambient air quality standards, and could be challenged under that regulation.

Mitigation or transportation effects (which, in Section IV, are shown to be minor) can occur in several ways. When the transportation impacts such as street clogging, delays near entrances and exits of certain indirect sources, etc., have been mitigated, a mitigation of air quality impacts and human health impacts results. Such mitigation can come about through the efforts of responsible traffic authorities to smooth traffic flow, sponsor efforts to eliminate on-site problems, and through driver common sense. Highways which receive federal aid (and this means virtually all the larger highways, freeways, etc.) must be found consistent with air quality standards and the State Implementation Plan (SIP) by the U.S. Department of Transportation as a result of Section 109 (b) of the Federal Aid Highway Act of 1970 (23 U.S.C. 109 (j)) in order to receive funding.

VIII. ALTERNATIVES TO THE PROPOSAL

A. The No-Action Alternative

"No-action" would mean that the Indirect CO Source Regulation would continue as before with no attention made to the problems associated with its administration (see II.C., Description of the Proposal, Reasons for Proposed Repeal of the Indirect Source Regulation.).

The No-action alternative, properly speaking represents no change in impacts. Minor impacts that have occurred are those associated with the occasional need to provide improved access to an indirect source as a result of a conditional approval. Such impacts could result from an Agency-imposed requirement to build additional roads or widened roads that, in turn, could cause increased water runoff or change of land use from agriculture to pavement. The possible magnitude of such environmental impacts is believed to be very slight. These impacts are not as significant as those that would result from the repeal and can be substantially mitigated.

Figure I compares the effects of the various alternatives.

B. Modification of the Indirect Source Regulation to Eliminate Orders of Approval/Disapproval

Two problems involved with the administration of the Indirect Source Regulation could be eliminated by revising it so as to eliminate the final order of approval or disapproval. First, it would eliminate the rigid adherence to the results of an analysis technique which lacks sufficient reliability to protect both the public and the proponent. In addition, the equity problems would be corrected. The regulation would then be equally applicable to attainment and non-attainment areas.

Under such a revision, sponsors would file applications as previously, and the air quality analysis would be made available to the public for review. Even if the analysis predicted a standard violation, however, no order of disapproval would result. The analysis then would simply serve to inform the public about any possible problems resulting from the construction of an indirect source. A similar change was made by the Washington State Department of Ecology in its Complex Source Regulation in 1975, a few months prior to its outright repeal.

The principal arguments against such a revision are that (1) it would take all the "teeth" out of the regulation, making it a totally ineffective regulatory tool; (2) PSAPCA would simply be performing the function of an air quality

FIGURE I: COMPARISON OF ALTERNATIVES

		Repeal	Alt. A - No Change	Alt. B - No Orders	Alt. C - Board Hearing
ENVIRONMENTAL IMPACTS	Air Quality	θ	0	θ	0
	Water Pollution	θ	0	θ	0
	Flora-Agricultural	0	0	0	0
	Land Use	0	0	0	0
	Transportation/Circ.	θ	0	θ	0
	Public Services	θ	0	0	0
	Human Health	θ	0	θ	0
MEETING PSAPCA OBJECTIVES	Effectiveness	+	-	-	-
	Reliability of Analysis	+	-	-	-
	Equity	+	-	+	-

0 = No change

+ = Decreased Impacts (or meets PSAPCA objectives).

- = Increased Impact (or failure to meet PSAPCA objectives).

θ = Mitigated Increase in Environmental Impact consultant and be competing with the private sector; and (3) the problem of the reliability of the modeling technique would be unchanged.

The environmental impacts resulting from eliminating final orders are essentially the same as those from the repeal action. As discussed in Section VII, these impact can be fully mitigated.

Figure I compares the effects of the various alternatives.

C. Modification of the Indirect Source Regulation to Make a Public Hearing the Basis for Approval/Disapproval

The regulation could be modified so as to provide for the PSAPCA Board of Directors to issue the Order of Approval (or Disapproval) based upon testimony in a public hearing. At such a hearing, the review analysis made by the PSAPCA staff would be presented as a recommendation to the Board which they could accept, modify or reject, based upon their discretionary judgment, which is the procedure by which PSAPCA has always processed variance applications.

The advantages of such a procedure should be well known to experienced parliamentarians. The public hearing process provides an arena in which both sides, project proponents and opponents, are able to confront each other, as well as the Board and its staff. The Board may elect to take sworn testimony during the hearing process, and insure that each side is given an equal and fair opportunity to present factual arguments on its behalf. In addition, the Board may consider economic and other factors in addition to air quality control in arriving at a decision, giving them an appropriate weighting beyond the degree of subtlety possible with a programmed computer analysis.

At the same time, the effectiveness and equity of the regulation would be unchanged since it would deal only with the measures that could be imposed upon the sponsors of projects to reduce air pollution, but do nothing with tailpipes. In addition, it would have the same lack of uniform application to attainment and non-attainment as before.

The resulting environmental impacts would be essentially the same as those of the "no-change" alternative (see below).

Figure I compares the effects of the various alternatives.

IX. OTHER ISSUES: PUBLIC HEARING REQUIRED

Under the Washington Clean Air Act, RCW 70.94.141 (1) the Puget Sound Air Pollution Control Agency is required to hold a public hearing at such time any of its own regulations or resolutions are adopted, amended, or repealed. Following completion of all requirements of the State Environmental Policy Act RCW 43.21C and Guidelines (WAC 197-10) if a decision is made to recommend any change in the PSAPCA Indirect CO Source Regulation, such a public hearing would be held as required. The date, time and location will be advertised through publication of legal notice, by mailout to the Agency distribution list for Regulation I changes, and by news release to various media.

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Glossary

ADT	average daily traffic
A-95	areawide review required by circular A-95 of the U.S. Office of Management and the Budget
CO	carbon monoxide
CDOT	Connecticut DOT
DEP	Connecticut Department of Environmental Protection
DEQ	Oregon Department of Environmental Quality
DOE	Washington State Department of Ecology
DOT	U.S. Department of Transportation; also, Connecticut DOT or New York DOT, where applicable
EIS	Environmental Impact Statement
EnCon	New York State Department of Environmental Conservation
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration of the U.S. DOT
HC	hydrocarbons (a precursor of photochemical oxidants)
ISR	Indirect Source Review
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act of 1969
NO_x	nitrogen oxides (a precursor of photochemical oxidants)
ppm	parts per million
PSAPCA	Puget Sound Air Pollution Control Agency
SIP	State Implementation Plan (detailing actions to be taken to attain the national ambient air quality standards)
SMSA	Standard Metropolitan Statistical Area
VMT	vehicle miles of travel
vpd	vehicles per day
3-C process	the "Continuing, Coordinated, Comprehensive" metropolitan transportation planning process required under federal transportation legislation